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ABSTRACT

This publication reports results of a survey of 83 ARL (Association of Research Libraries) member libraries that examined the decision making process in migration from one automated library system to another. Data are reported on planning; implementation; workflow redesign; and training, publicity, and evaluation. Supplemental materials include: (1) university planning documents from the University of Alberta (Canada), University of Kentucky, and State University of New York at Albany; (2) network and consortium planning documents from Kent State University (Ohio), University of North Carolina at Chapel Hill, and North Carolina State University; (3) organization charts and workflow documents from the University of Kentucky University of Manitoba (Canada), University of New Mexico, and Queen's University (Ontario, Canada); and (4) marketing and user guides from the University of British Columbia (Canada) and University of Kentucky. A copy of the questionnaire is included, and nine selected readings are listed. (KRN)

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SPEC

SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 185

System Migration in ARL Libraries

June 1992

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SPEC

SYSTEMS AND PROCEDURES EXCHANGE CENTER

Flyer 185

System Migration in ARL Libraries

June 1992

INTRODUCTION

Since libraries began automating various aspects of processing in the late 1960s, they have struggled with the transition from one system to another.

As the hardware and software of these first generation systems has become dated, and electronic information sources have become increasingly available in the mid-1980s, libraries have begun to recognize the need to begin to plan for the replacement of their present integrated library systems. In the meantime, user demands for more locally mounted information files and more sophisticated searching techniques reinforce this need to change systems. This movement to a new generation of library systems has become a critical decision for libraries in delivering information to users.

In May 1992, a survey designed to explore the reasons why institutions migrate from one automated system to another was mailed to all ARL library members. The survey also sought to discover what differences there were in planning and implementation when migrating to a new automated system. It is clear from survey responses that this transformation occurs through a process of system integration, a knowledge of and working relationship with the local university- or community-wide information infrastructure, a role reassessment brought on by a new environment of gateways provided by these new systems to access the multitude of files and services available via Internet, and (in some cases) formation of a consortium or network to share a system.

SURVEY RESULTS

Eighty-three libraries responded to the survey, and, among that number, 41 (49%) have migrated or are in the process of migrating from one automated system to another.

Planning. Among the 42 respondents that have migrated (or are in the process of migrating) to a new integrated system, 25 libraries (58%) moved from GEAC, locally developed systems, or CLSI to NOTIS (14 libraries, 33%), Innovative Interfaces (9 libraries, 21%), or DRA (9%). Although factors leading to system migration are varied among institutions, they were ranked by respondents in the following order: enhanced software features, connectivity, hardware reliability and capacity, regional network, and improved system integration.

Survey results indicated that slightly over half of the respondents have undergone a needs assessment and an evaluation of their old system. RFP (request-for-proposal), the standard bidding process, was used by 19 libraries (45%) of the respondents for their new systems and by 18 libraries (42%) for their first systems. In analyzing these data, it appears that libraries are employing less formal practices such as RFI (request-for-information) or RFQ (request-for-quote) in soliciting proposals from system vendors.

In seeking a second or third generation system, libraries are faced with constraints limiting their choices. Over half (26 out of 42) of responding libraries identified hardware and operating systems as one overriding limiting factor in system selection; funding followed as a second. For libraries in Ohio, North Carolina and New York, the development of state and regional networks has been the defining factor in the selection of their systems.

In comparison with that for the first system, the RFP for the new system contained significant changes in the following areas: software enhancements, improved integration, more simultaneous users, ease of use, improved response time, and loading of external databases. Recognizing the lack of these capabilities in their old systems, these libraries have turned to their new systems for answers. Another major difference between the planning of the old and the new systems was the involvement of the computing center in the system evaluation process---a clear indication of the emerging infrastructure in which both libraries and computing centers assume their appropriate roles in the information delivery system.

Implementation. One of the most important questions for libraries in preparing for migration is whether and how the data contained in the old system are to be extracted and imported into the new system. While there are various types of data (bibliographic, holdings, patron, circulation, acquisitions, serials, authorities, etc.,) that can conceivably be extracted, libraries usually find themselves faced with a high degree of customization for loading the data. Twenty-one out

of thirty-one libraries (67%) reported the use of customized loaders to move bibliographic data, the type of data most easily transportable with variations existing only in local fields. A higher percentage of respondents required customization for their holdings data, and a few libraries were able to move other types of data.

Workflow Redesign. In implementing a new system, libraries are faced with examining their existing workflow and establishing new ones based on the new system's capabilities and limitations. Seventeen out of thirty-seven libraries (45%) did an analysis of their old workflow. Thirty out of thirty-three libraries (90%) reported to have revised their workflow to accommodate the new system. Most of the changes in workflow occurred in the following areas: the relationship between local systems and bibliographic utilities, reassigning the pre-order searching process, and decentralizing certain centralized tasks, such as database maintenance. As a result of the change in workflow, sixteen out of thirty-one libraries (51%) have restructured their organizations accordingly. Prominent among these was the realignment of the serials acquisitions function either with the acquisitions department or with the serials department, which then became responsible for both acquisitions and cataloging. The alignment of the serials acquisitions function is a perpetual debate among practitioners and an area most likely to be vulnerable for restructuring in large libraries.

Training, Publicity, and Evaluation. In minimizing the impact of migration to a new system, responding libraries indicated the employment of communication mechanisms such as newsletters and/or presentations, training and documentation, parallel system operation, and phased implementation in preparing both library staff and users during the transition process.

In order to involve staff in both the planning and the implementation processes, 36 out of 42 libraries (85%) established formal training programs for staff on bibliographic modules, OPAC, circulation, acquisitions, serials, locally-mounted databases, remote users. Eight libraries offering formal user training programs provided a separate training module for remote users.

To find out how staff and users rated the new system, only 15 out of 34 of the libraries applied formal mechanisms to seek feedback from both. Overall, users were more pleased with the new system than the staff. Staff dissatisfaction concerned loss of functionalities of their old systems and the new vendors' inability to supply required features. Even with the best intentions and preparations, some of these libraries had to cope with unexpected outcomes such as loss of data, increasing costs, increased remote use, complex merging of disparate system platforms and data, and premature abandonment of manual files by both staff and users.

ISSUES AND TRENDS

The key issues for the system migration process will continue to be staff involvement and database conversion. Integrating the staff representing all service components into the entire process has played an important role in the outcome of system migration. Once the new system is selected, the three key areas--training, documentation, and workflow redesign--require staff input in making a smooth transition. Since standards for most types of data are non-existent, it is paramount that libraries work closely with the vendors of both the old and new systems to investigate the feasibility of mapping the data. Documentation of local practices for the old system should also play a key role in the conversion process.

As information and technology advance at an accelerated rate, libraries will always be confronted with system migration to more effectively and efficiently deliver information to users. Unlike those first-generation systems used by libraries to better manage resources and provide rudimentary functionalities to access their collections, new systems have transformed the role libraries and librarians play in the overall framework of information storage and retrieval.

This Kit and Flyer was prepared by Ling-yuh W. (Miko) Pattie, Assistant Director for Technical Services, and Michael Lach, Associate Director for Public Services and Systems, University of Kentucky Libraries, and was prepared as part of the OMS Collaborative Research/Writing Program.

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

Kit 185

System Migration
in ARL Libraries

June 1992

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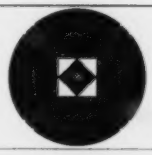
ASSOCIATION OF RESEARCH LIBRARIES  OFFICE OF MANAGEMENT SERVICES

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

SURVEY RESULTS

ASSOCIATION OF RESEARCH LIBRARIES
OFFICE OF MANAGEMENT SERVICES
1527 New Hampshire Avenue, N.W., Washington, D.C. 20036
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TO: SPEC Liaisons

FROM: C. Brigid Welch, Program Officer for Information Services
Michael Lach and Miko Pattie, University of Kentucky

DATE: 1 May 1992

SUBJECT: SPEC Survey on System Migration

PLEASE FORWARD TO SYSTEMS LIBRARIAN

This SPEC survey is designed to gather data and documentation on the decision making process in system migration—the migration from one automated library system to another. This survey is trying to find out if there are differences in planning and implementation between the old and the new system, and what they are. It is hoped that by reviewing this data, other libraries will be in a better position to migrate from one system to another.

Please return completed surveys and documentation by **June 4, 1992**, to: Michael Lach, 127 King Library—North, University of Kentucky, Lexington, KY 40506. If you have any questions about the survey, please call Michael Lach or Miko Pattie at (606) 257-3801.

SPEC SURVEY - SYSTEM MIGRATION

Library/Institution: _____

Contact Person: _____

Title: _____ Telephone: _____

1. Have you gone through, or are you now in the process of library system migration?

   _____ yes (please proceed to the next question)
   _____ no (please return the survey to the address listed below)

2. How long were you on your old system? 9.4 years, average. Oldest= 25 years
   The vendor of the system: Newest= 2 years

3. How long have you been on your new system? 1.7 years, average. Oldest= 12 years
   The vendor of the system: 16 Libraries in implementation

4. What led you to decide that it was time to migrate to a new system? (check all that are appropriate)

   20 need for more capacity
   34 need for enhanced software features
   23 connectivity
   25 other (please specify): _____
   21 reliability of hardware, institutional
   10 external influences, i.e., computer being changed
   12 future support of national standards

5. In making the formal decision to migrate:

   a. Did you have a formal needs assessment? 22 yes 18 no 1 will have

   If yes, please describe the process on the back of this sheet and/or **enclose appropriate documentation.**

b. Did you evaluate your old system's pros and cons? 25 yes 16 no

If yes, please describe the process and/or **enclose appropriate documentation.**

c. Did you have a formal planning committee? 35 yes 6 no

If yes, was it the same as the planning committee you used for your old system?

3 yes 30 no 6 does not apply

If no, what was different?

27 composition
9 requirements reports
17 charge
6 other (please specify):

6. What constraints limited your choices in a new system?

17 hardware
19 funding
5 personnel
6 regional network decisions
9 operating system
13 other (please specify):
1 none

7. Did you issue an RFP for the old system you installed? 19 yes 21 no 2 do not know

If no, why? _____

8. Did you issue an RFP for the new system you installed? 18 yes 24 no

If no, why? _____

9. If you issued an RFP for both systems:

a. Did you base the new RFP on the old RFP? 2 yes 15 no

b. If you changed the requirements, please indicate which areas.

5 hardware specific
7 number of simultaneous users
6 external databases
8 improved integration
6 response time
8 software enhancements
7 ease of use
1 other (please specify):

10. Did you have a formal evaluation committee for the new system proposals?

30 yes 8 no

a. If yes, the composition of your evaluation committee included:

3 purchasing
8 communications
31 library administration
28 public services librarians
18 branch librarians
5 other (please specify):
26 computing center
9 central administration
12 users
29 technical services librarians
10 teaching faculty

b. Was the composition of your new evaluation committee different than the old one?

20 yes. If yes, please describe on the back of this sheet. 4 no

11. Was the evaluation process different for the new system? 27 yes 11 no 1 n/a

If yes, please indicate the differences.

12 evaluation instrument
6 library staff involvement
7 other (please specify):
8 user involvement
9 computing staff involvement

12. Who made the final selection decision for your new system?

13 Evaluation committee
17 Library director
7 Person to whom director reports
3 President
2 Board of trustees
14 other (please specify):

13. Was the selection decision made by a different person or group for the old system?

15 yes 20 no

If yes, please specify:

14. What data sets were you able to extract from your old system? Please check the type of loader used for each type of data.

	standard loader	standard loader/ customized program	customized loader
bibliographic data	9	11	10
holdings data	3	11	12
patron data	4	6	8
circulation data	2	8	9
acquisitions data	2	3	3
serials data	4	5	4
authorities	3	2	2
other (please specify):	0	1	0
none	5		

15. Did you analyze your workflow based on the old system? 17 yes 20 no

16. Did you revise your workflow as a result of installing your new system? 30 yes 3 no

If yes, **please send examples of change in workflow as a result of new system implementation.**

17. Have you restructured your organization as a result of changes in workflow? 16 yes 15 no

If yes, **please include documents that demonstrate the changes in organization as a result of workflow change.**

18. What plans did you make to minimize any negative impact of migration to another system?

35 communication, i.e., newsletter, presentations, etc.
25 access to documentation, i.e., vendor or locally created
24 parallel system operation
31 phased implementation
34 training
6 other (please specify):

19. Did you have formal training programs for: 36 staff 16 users 0 no formal training programs?

Please check off subject areas of formal training for either staff or users. **(Please include training documents for each category that you have checked off)**:

	Staff	Users
bibliographic	28	2
OPAC	25	17
circulation	27	1
Acquisitions	21	0
Serials	18	0
locally mounted databases	5	5
remote users	3	8
other (please specify)	1	0

20. Did you seek formal feedback about your new system from:

6 users 9 staff 19 no formal feedback

Please include survey documents, results of the survey, and/or other feedback documentation.

21. Do you find that users are more pleased with your new system than the old?

22 yes 1 no 7 do not know

If yes, why?

If no, why?

22. Did you find that your library staff is more pleased with the new system than the old?

18 yes 4 no 2 do not know

If yes, why?

If no, why?

23. Please describe any unexpected outcomes that emerged as a result of implementing your new system.

Please return the completed survey and documentation by **June 4, 1992**, to:

Michael Lach
127 King Library North
University of Kentucky
Lexington, KY 40506

SYSTEMS AND PROCEDURES EXCHANGE CENTER

PLANNING DOCUMENTS: UNIVERSITIES

ASSOCIATION OF RESEARCH LIBRARIES OFFICE OF MANAGEMENT SERVICES

CHECKLIST FOR EXAMINING AUTOMATED SYSTEMS

CONSTRAINTS

1. The Library is scattered over several buildings. Unit libraries operate somewhat independently, but most use a central technical services division for acquisitions and processing. Not all Units use the automated circulation system.

2. The collection has some 5,000,000 volumes. At time of installation it is expected that there will exist about 1,500,000 automated title records (about 2,500,000 volumes). The data base may double in size over the next five years due to normal work, retrospective conversion, acquisition of major microform sets, government documents, authority records, etc.

3. The user data base numbers some 50,000 - 60,000 direct users.

4. A significant part of the collection is bar coded. Students are also identified by bar code numbers. In each case, Code 39 symbology is used.

5. The Library has some 200 IBM 3270 compatible terminals.

6. The online catalog and circulation functions are operational during library hours, which are 16 hours per day, 7 days per week.

7. Machine readable records currently reside in numerous files and different systems. Very little standardization or integration exists. Files exist for
   - -- MARC bibliographic, authority records, holding records
   - -- non MARC bibliographic records (eg, SPIRES data bases)
   - -- patron records
   - -- circulation records
   - -- in-process records
   - -- vendor records
   - -- accounting records
   - -- budget file records
   - -- serials data base records

8. The Library pays hard dollars for computing.

9. University Computing Systems (UCS), the campus computing centre, operates IBM and IBM compatible mainframes. Operating systems are MVS, VM and MTS.

*10. UCS operates two campus networks to which the system will need to connect. A fibre backbone network is being proposed.

FEATURES CHECKLISTS

ON-LINE CATALOG

Required features

1. Self-evident to patrons, requiring minimal printed guides and no staff intervention.
2. Supports separate data bases in addition to the Library's; eg Faculté St. Jean.
3. Allows direct searches and browsing using phrases, keyworks, truncations, and boolean combinations. Provides for limiting of results.
4. Supports printing at designated terminals, downloading of records to workstations, and remote print requests.
5. Generates statistical reports indicating patterns of use.
6. Tolerant of future developments; e.g. scanning data, image storage.
7. Accessible to the disabled through braille terminals, etc.
8. Provides information about the library; e.g. bulletin board, directories, hours of service, information screens, maps of the library.
9. Has an electronic mail system for inter library loan requests, on-line suggestion box, etc.
10. Round the clock availability.

Detailed features checklist for an on-line catalog:

A. **Extended Catalog functions available to patrons**
   1. Access to remote commercial data bases and other catalogs (eg through Internet), Optional local accounting capability.
   2. Electronic mail service (suggestion box, error notification, requests for document delivery, etc.)
   3. Library Information module - bulletin board, library hours, pathfinders, tutorials, etc.
   4. Access to locally loaded data bases.
   5. Placement of a hold on a circulating item.
   *6. Ability to generate an ILL request without rekeying bibliographic data.

B. **Searching and browsing**
   1. Can work with accounts and passwords, and also without them.
   2. Provides both command based searching (preferably using NISO standard command language) and menu driven searching.
   3. Indexes can contain data from disparate fields; eg, title index can have main titles, subtitles, uniform titles, etc. The Library controls the fields and subfields to be indexed.
   4. An index or file can be restricted to authorized personnel only; eg. provenance; circulation info. related to individual borrowers, etc.
   5. Capabilities are layered. Novice level facilities are always available; more sophisticated tools are available on demand for the expert.
   6. Access points. User input is normalized; i.e. search terms are automatically adjusted by the system according to the filing of the index in which the search is being conducted.
      a. Keywords, with no restriction on which fields can be indexed for keywork searching.

b. Headings Searching is possible for the following:
   1. Name heading
   2. Title and/or uniform title
   3. Name/title added entry
   4. Series title and series number
   5. Subject heading phrases
   6. Publisher

c. Call numbers
   1. Exact and truncated call number
   2. Call number range, using greater than and less than operators.
   3. Regular LC call numbers, pseudo-LC call numbers (for micromaterials), and other call numbers; eg, Government document numbers, UDC, etc.

d. Numbers
   1. LC card number
   2. UTLAS, RLIN and OCLC control numbers
   3. Local control number
   4. ISBN, ISSN
   5. Standard Music numbers (printed music and sound recordings)
   6. Government document numbers
   7. Other numbers as required

7. Searching
   a. Boolean operations
      1. Permitted among the same or different data categories, not just among terms within a single category; eg, titles, authors, subject headings, etc.
      2. Permitted in the initial search, as well as when modifying a search result.
      3. Nested boolean operators possible for complex searches
   b. Single searches across multiple indexes are possible; eg, books by or about a person.
   c. Adjacent and proximity word searching are available.
   d. Truncations available are right hand, left hand and with embedded wild card characters.
   e. Relational operators (greater than, less than, equal to) allow range searching.
   f. A selected bibliographic record is retrieved only once, no matter how many times it satisfies a given search request.
8. Browsing of indexes
   a. Filing is word by word rather than character by character. Special characters and diacritics are handled in a predetermined manner, MARC tags are ignored and call numbers are filed correctly.
   b. Indexes are permuted to aid browsing.
   c. Browsing is forward and backward to the beginning or end of the file from any point entered.
   d. A browsed entry can be selected for searching without rekeying.
   e. References interfile with headings in the browseable indexes.
9. Redirected searches
   a. Cross references display when they are attached to a selected heading.
   b. When a cross reference is retrieved, records under the established heading are retrievable with minimal rekeying.
   c. Related records are retrievable; eg, find other records with the same subject heading

or name heading as in the one selected.

10. Search results may be limited by eg.
    a. Date of publication.
    b. Language and place of publication.
    c. Material type; eg, monograph, serial, printed matter, maps, phonorecords-spoken, phonorecords-music, etc.
    d. General Material Designator.
    e. Area Library and location code.
    f. Circulation, order, receipt status.
11. Sets of records created as a result of searches are saved, allowing for further boolean or other refinement of a search.
    a. History of sets saved is available for viewing.
    b. Results in sets may be sorted alphabetically, chronologically or by library location.
12. An INTERRUPT key enables cancelling a lengthy search or intermediate screens displaying ongoing search results are displayed. If the latter, prompts are supplied when appropriate asking whether the patron wishes to continue.
13. The user may "back-up" to the previous step in a search.
14. Tables of contents of periodicals can be accommodated for searching.
15. The start and end of a search session are identified.
16. Patrons can define parameters for a search session; eg, how to sort, how to display, etc.

C. **Display of Results**

1. Each display of retrieved records is preceded by a display of the search which found them.
2. Records can be displayed in the following formats:
    a. Brief bibliographic record.
    b. Long bibliographic record.
    c. Full MARC record.
3. Content of a display is dependent on the type of record; eg. different fields display for serials than for monographs. The Library defines the content and format of displays. For example, always accompany call numbers for serials with summary holdings.
4. The display of a name and a title from a name/title added entry preserves the linkage between the two.
5. Location, call number, processing status (ie, on order, catalogued, etc), and summary holdings are displayed early when records are retrieved. Non-circulating material, such as Special Collections material, is clearly identified as such.
6. Detailed holdings information includes circulation information for each circulating copy. Different formats may have different holding displays.
7. Relationships among records are displayed. For example, show the history of serials which are linked together by title changes; find a specific volume in the Transactions of the AIME.
8. All used see references, see-also references and applicable notes are visible in the public access catalogue. Authority records not linked to bibliographic records are not displayed.
9. When a search request retrieves one record, that record displays immediately with no intermediate steps.
10. There is no unreasonable constraint on the number of records that can be retrieved, sorted or displayed.

D. Help Function

1. On-line help information of the following types is available:
   a. Instructions for a specific function or command (reference manual).
   b. Context sensitive help, eg. "help" key.
   c. Topical help via menu (user's guide and/or tutorials.)
2. After the help activity is complete, the terminal returns to pre-help status.
3. Help information can be customized by the Library.
4. System error messages are accompanied by suggestions for correcting the error, and opportunity to edit the failed search request.
5. Built in intelligence makes the system forgiving of simple or common errors (differences in British and American spelling, phonetic searching, automatic plural searching). However, this "intelligence" is always apparent to the user who can override it at any time.
6. A capability to review a search strategy is available.

E. Reports

1. Various locally defined usage statistics are kept and reported.
2. Search results can be downloaded to user workstations in predefined formats.
3. Patrons may generate predefined reports; eg. a bibliography according to Chicago style manual.

CIRCULATION CONTROL

Required features

1. Ability to access the on-line catalog from within circulation.
2. Real time circulation status updates in the on-line catalog.
3. Availability of circulation functions during library hours, even if the host computer is down.
4. Patron file which can accept locally created data, and machine data from other administrative campus units such as Registrar and Comptroller.
5. No system limitation on the number of circulation locations, number of patron types, number of material types, number of items borrowed, or number of fine transactions.
6. Ability for authorized staff to override any system parameter or transaction; eg. loan period, blacklist, recall criteria, etc.
7. Local control of circulation system parameters and report generation.
8. Different views of data for different functions and for different operator authority levels.
9. Statistical views of the collection's use and all necessary reports for running the business, including overdues, bills, recalls, accounts receivable.
10. Ability to use bar code labels already in the books.
11. Ability to circulate items with no bar code labels.

Interfaces:

1. Registrar
2. Comptroller
3. Library modules; eg. public catalog, Financial Systems

Detailed checklist for circulation

A Patron data

1. Personal and institutional patrons are allowed.
2. Patron data include at least the following information:
   a. Patron identifier.
   b. Name.
   c. Status.
   d. Address (campus, home, e-mail, preferred address).
   e. Telephone numbers (campus, home, fax).
   f. Special codes eg., fineable/non-fineable.
   g. Expiry date.
   h. Pointers to fines.
   i. Local notes to track problems such as patron suspensions and fines appeals, etc.
3. A flagging or trapping mechanism allows special action; eg. hold now available, problems, etc.
4. Patron records can be loaded individually and in bulk.
5. In batch mode and on-line, authorized staff can
   a. Modify existing data in patron record.

   b. Add or delete fields in patron record.
   c. Modify groups of records with one command; eg. deregister a group of people simultaneously.
6. Data can be imported and exported from and to administrative systems.
7. Patron data base can be queried by at least:
   a. Identification number.
   b. Name (in full, truncated and by keyword).
   c. Status.
   d. Campus department.

B. Loan periods

1. Loan periods are measured in minutes, hours, days, weeks, and fixed date.
2. Due date is determined by the system based on library defined parameters such as patron status, material type, location, and holidays.
3. System parameters are modifiable by authorized staff.
4. Loan period policies are centrally controlled.

C. Charge-out function

1. Patrons are validated prior to charge-out.
2. Normal charge-out is to a patron.
3. Charge-out to a location within the library is possible; eg, Departmental loans, Reserve room, carrel loan, storage facility, etc. These display as temporary location changes in the public catalog.
4. Sub charge-out is possible; eg, from Reserve room, from storage facility, etc.
5. Items which are not in the automated system can be charged out.
   a. Items with no automated records.
   b. Items without detailed holdings records (eg., micromaterials).
   c. Items temporarily added to the system eg, professors' copies for Reserve, ILL.
6. Possible to limit the number of items a patron can have charged out simultaneously.
7. Bulk charge-out/"truck loan" capability allows easy movement to new book shelf, to storage, etc.

D. Discharge

1. Discharge returned items, including those charged out to locations within the library.
2. Items "sub" charged out from an internal unit such as a Reserve room are returned to the lending unit.
3. A trapping mechanism notifies operator of items on recall, hold, belonging to a different location or items with problems.
4. Discharges may be back-dated.
5. When an item is returned to other than a home location, its status changes to "in-transit" for some specified period of time.

E. Renewals

1. Renewals are made by staff. They are requested by patrons in person, by phone, or by electronic mail.
2. Renewal command is same as charge-out command.
3. Renewal entered as a charge-out is recognized as a renewal and tracked accordingly.

4. Limitations on the number of renewals allowed is controlled by library defined parameters. These include patron status, material type, and location.

F. Holds

1. Holds may be placed by staff and by patrons.
2. Holds are normally placed for material not on the shelves. These include
   a. Any copy of a given title; ie, first available copy.
   b. A specific copy of a title; eg, when needed for repair.
   c. An item in limbo; not on loan, not on the shelves, and not yet declared missing (i.e., "searches").
   d. Items in transit.
   e. Items which have been received but not yet catalogued.
   f. Items which have been ordered but not yet received.
3. The hold queue can support an unlimited number of holds for a given item.
4. Authorized staff may alter the order of holds in the hold queue.
5. The number of items on which holds may be placed is unlimited.
6. When placing a hold, the operator is notified about how many holds already exist on the item sought.
7. Holds are dissolved automatically upon expiry, or when the held item is picked up. Authorized staff may release a hold manually.
8. One person may have only one hold per item at one time.
9. System flags instances of active holds on a title exceeding a library specified threshold, and triggers a report.
10. For items destined for a Reserve reading room, a special hold indicates when the item will be sent there and when it will be back. These items may be on the shelves when the hold is placed.

G. Recalls

1. Staff places recalls for items on loan and desired by others.
2. Recall notice is automatically issued to the patron who has had the desired item for some guaranteed loan period.
3. Patrons who do not return recalled items are suspended automatically.

H. Blocking of loans

1. Block function is based on patron status; eg. suspended.
2. Blocks are generated automatically.
3. Authorized staff may override blocks or create them manually.

I. Overdues, fines, and charges

1. Overdues are recorded automatically. Holidays and grace periods are taken into account when determining overdue status.
2. Normal fines are calculated according to Library defined parameters. These may include, for example, length of time an item is overdue, material type, patron status, location, etc.
3. Authorized staff may forgive fines, and they may impose discretionary fines or charges. For example, on-line search service fee, lost book fee.
4. Audit trail of fines is kept. The financial history of a given item or a given patron can be retrieved.

5. Fines may be paid and recorded at circulation units. Receipts are issued there.
6. For an item declared lost, a replacement fee is calculated based on actual replacement cost or some average price algorithm.
7. Statements include a system maintained balance owing.
8. Financial data are available interactively to the Registrar, the Comptroller and the Library's Financial Systems unit.
9. Bad debts may be written off.

J. Reserve reading rooms

1. Multiple independent Reserve locations are supported.
2. Material not belonging to the Library may be placed in Reserve; eg, a professor's copy. Records for this material are maintained and are searchable in the Reserve locations.
3. All material in Reserve is searchable by course number, course name, and professor name. Optionally, bibliographic data for material not belonging to the Library may be excluded from the general on-line catalog. Otherwise, normal catalog access points are also available for searching at all catalog locations.
4. An item may be placed on Reserve for more than one course, and be searchable by all relevant course numbers, course names, and professors' names.
5. Authorized staff may deregister items from Reserve item by item, by course and section number, and by professor's name.
6. Items not related to a specific course, but in high demand, may be placed in Reserve.
7. A patron may make a reservation to borrow an item at a specific future time, such as next Friday at 3 pm.
8. Holds placed on Reserve items do not generate any notices to the patron.
9. Records similar to those of vendors in acquisitions are kept of professors placing material in Reserve.

K. System generated reports (examples)

1. Notices
   a. Examples of notices include overdues, recalls, financial statements, notification that a requested item is now available, list of items on loan to an individual, etc.
   b. Library specifies the data included in any notice, and may add new types of notices at will.
   c. Notices are normally produced automatically, but may be suppressed or explicitly requested individually by command.
   d. Tracking of notices is provided; eg, third overdue notice.
   e. Notices may be delivered to unit libraries for distribution as well as mailed.

2. Patron reports
   a. Listing of all items charged out to a patron.
   b. Listing of all items on which patron has placed a hold.
   c. Listing of all items borrowed by a patron within a specified time (e.g. one year).
   d. Billings for external borrowers.
   *e. Listing of patrons with expired cards.

3. Statistical reports

3. Statistical reports
   a. Collection use; eg, number of times an item circulates.
   b. Patron demographics, including patron status.
   c. Interaction between collection use and patron demographics.
   d. Daily and cumulative transaction summaries by type of transaction, time of day, location.

4. Audit trail for financial tracking.

5. Reserve Room reports
   a. Circulation use by course, by course section, by department offering course, by professor, by level of course, by location.
   b. Overdue notices and bills.
   c. Listings of courses with Reserve items for each course.
   d. Total number of items on Reserve by course, by course section, by department, by professor, by level of course, by library area.
   e. List of items being added to Reserve Rooms, with ability to have it sorted for pulling from stacks.
   f. List of items being taken off Reserve, with ability to have it sorted.

L. Administrative control

1. Circulation functions may be defined for specific terminals.
2. Any function can be turned on or off at will at each circulation terminal.
3. Circulation parameters are defined and modified by the Library. For example, define new trapping mechanisms to catch all items with no call number or items with a catalogued status acquired before 1974.
4. A backup circulation function allows the library to capture charge transactions electronically when the system is down and upload that information when the system is up again.

M. Questions

1. How does the system deal with multiple pieces which circulate as a unit, e.g., maps, audiovisual materials, scores with parts? Is there a way to link all pieces together so that the charge is not cleared until all pieces are returned? Can the system notify staff at time of discharge the number of parts that need to be returned?
2. Is there a materials/equipment booking feature in the system? Is it possible to circulate items for which records are custom made and will be erased upon their return (e.g. microfiche readers)?
3. Can the system record in-library use of material?
4. Is the system capable of handling self-service circulation?

CATALOGUING

CATALOGUING SUPPORT

Required features:

1. On-line facilities for the creation, storage and maintenance of bibliographic and authorities data, including locations and holdings.
2. Full MARC support with no system imposed limitations.
3. Ability to support separate files and bibliographic control functions for separately administered libraries, e.g. Faculté St. Jean.
4. Holdings data suitable for circulation control.
5. Interactive operation between authority and bibliographic files.
6. Full support for the complete ALA character set plus other characters found in bibliographic utilities. CJK support is highly desirable.
7. Full range of book/non-book products and management reports.

Interfaces:

1. Bibliographic Utilities (UTLAS, OCLC, RLIN, etc.).
2. LC and NLC authority tapes.
3. LC/NLC, etc. bibliographic tapes.
4. CD-ROM data bases.
5. Library modules; eg, public catalog, acquisitions.

Detailed features checklist for cataloguing support:

A. **Data capture**
   1. Bibliographic and authority records may be keyed directly, downloaded from utilities, or loaded off-line.
   2. Records received may be in any MARC communication format.
   3. It is possible to re-search a utility automatically to see if a previously not found record has become available.
   4. A record may be replicated.

B. **Record content and format**
   1. Bibliographic records are fully MARC compatible for all record types; eg, monograph, serial, micro, etc.
   2. Authority records are fully MARC compatible for all record types; eg, name (personal, corporate, conference), subject, series, uniform title, author/title.
   3. Future enhancements of MARC standards are easily accommodated.
   4. Characters supported are ALA, plus others found at the utilities; eg, Hebrew, Arabic, Chinese, Japanese, Korean, Cyrillic, mathematical symbols, etc.
   5. No restrictive limitations on record and field lengths.
   6. No limits on how many times a repeatable field can be repeated in a single record.
   7. Local note fields are permitted.
   8. Records may be displayed showing all MARC tags, indicators and subfield codes.
   9. A bibliographic record may have linked to it a virtually unlimited number of item records.

10. A single physical item may be linked to multiple bibliographic records; eg, several works bound together.
11. Possible to have summary holding data as well as individual copy information.
12. Locally defined brief records are permitted.
13. Possible to override stop word list when indexing; eg, Vitamin A.
14. Tables of contents are supported.

C. Record update

1. All records are modifiable.
2. Authorized personnel may change any component of a record, including data elements, MARC tags, and MARC codes.
3. Using a control number as a key, an individual record may be replaced by one delivered from a utility. Linkage to holdings, acquisitions and other local information for that title is preserved in the process.
4. Possible to make a global change in any field or subfield across all records of the data base. For example, change the spelling of a name heading in all records which have that heading. Similarly, change a topical subject heading, or a series heading, or a uniform title, etc.
5. Authorized personnel may identify a subset of records, select specified fields and subfields within this subset, and process a mass change. For example, change the location code in all records of a particular material type held by a given library area.

D. Quality control

1. All records are validated upon entry into the data base; eg. headings, MARC coding.
2. Presence of required fields and subfields is checked automatically.
   Non-repeatable fields are checked as occurring no more than once.
   a. The library controls the table of required fields and subfields.
   b. Staff may override the need for required fields and subfields in specific instances.
3. A facility exists to defer processing pending later review; eg, for training new staff.
4. The physical location of an item in the work flow, including the bindery, may be tracked.

E. Authority control

1. Selective validation for different bibliographic data bases is possible; eg, Faculté St. Jean.
2. Authority records are linked to all appropriate bibliographic records in the various data bases within the system.
3. Headings in a new or revised record are checked against the authority file, and the record is flagged when
   a. The heading occurs for the first time in the data base.
   b. The last bibliographic record using that heading is deleted from the file or its status is changed to withdrawn.
4. The complete LC and NLC name and subject authority files are locally supported.
5. All authority records are visible.
6. When a heading in a new record matches a reference in the authority file, the authority heading replaces the record's heading.
*7. Ability to suppress selected references.

F. Retrieval of records

1. All access points and strategies available in the on-line catalog are available for retrieval for both bibliographic and authority records.
2. Records not visible in the on-line catalog are retrievable in the cataloguing support module; eg, unused authority records.

G. On-line shelflist

1. One bibliographic record may have several call numbers of different types; eg, LC classification, Government Document number, etc.
2. Monographs may have single and multiple volumes.
3. Serials may have both summary and detailed holding records.
4. All materials may have multiple copies and locations.
5. Records are browseable in call number order and with display of Author/Title data.
6. Holdings are sorted by the system.
7. Call number problems are flagged; eg, attempt to use the same call number for different records.
8. Call numbers are validated based on rules for the specific call number structure and automatically adjusted for correct filing; eg, LC.
9. A locally defined table of location codes for items is accommodated.
10. Records may be transferred from the data base to a history file when books are withdrawn.
11. A bibliographic record may contain no call number; eg, on-order material.

H. Collection management

1. Reports are generated for items needing action; eg, materials to be destroyed or transferred or to be sent for preservation work.
2. Items undergoing special action, such as preservation, are tracked.

I. Special collections and special formats

1. Some copy specific information can be stored for retrieval by authorized staff only. For example, such information for rare books would include appraisal value, dealer, preservation information, lending information, cost.
2. Some location and call number information may be private. The public record displays a general collection location, e.g. Archives, but not the specific location within the archives. The latter is available to authorized staff.

J. Products

1. A full range of normal products is available. This includes spine labels, bar codes, shelflist cards, COM, acquisition lists, etc.
2. A standard suite of management and statistical reports is available.
   For example,
   a. Number of titles and volumes catalogued by format, call number, location, etc.
   b. Number of records created (by type).
   c. Number of item records created.
   d. Number of records deleted.
   e. Number of items deleted.
   f. Error reports.

3. Staff may generate custom reports.
4. Book products, such as bar code labels, are produced daily and on demand.
5. Data base records may be output in any standard MARC communications format.

ACQUISITIONS

ACQUISITIONS

Required features

1. On-line operation.
2. Able to support separate acquisitions operations for different libraries in the system; eg, Faculté St. Jean.
3. Integration with the on-line catalog and circulation control.
4. Security levels for display and update of data according to operator status.
5. Flagging mechanism for records requiring action.
6. Tracking mechanism for monitoring the progress of an order from submission through receipt to history.
7. Budget analysis tools.
8. Meets audit requirements of University of Alberta.
9. Ability for authorized staff to override any system parameter or transaction.
10. Local control of acquisition system parameters and report generation.
11. Support for electronic mail, and electronic linkages to vendors.
12. Back-up during system outages, especially for serials check-in.
13. Ability to add data elements once system is established.

*14. Financial files can accept locally created data, and machine data from other administrative campus units such as the Comptroller, Materials Management (Customs).

Interfaces

1. Bibliographic utilities (UTLAS, OCLC. RLIN).
2. Vendors, publishers, binders.
3. On-line catalog and Circulation.
4. On-line searching tools (e.g. BIP).
5. CD-ROM products.
6. Union listing.
7. Publisher and Agent data bases such as Faxon Micro linx, DataSwets.

Detailed checklist for acquisitions

A. **Record content**

1. Acquisitions data may be keyed directly, downloaded from utilities and vendors, or loaded therefrom off line.
2. Machine-readable data may be scanned; eg; BISAC, SAN.
3. Record structure accommodates all University of Alberta data requirements with no limitation. Acquisition specific data required includes at least

Fund code/cost centre	Price (committed, expended, orig curr)
Purchase order number	Vendor
Publisher	Invoice number
Cheque number	Vendor & publisher credit memo

Indent	Membership
Package Plan	Exchange
Donation	Various status codes
Type of order e.g. RUSH	Priority codes
Location	Country of publication
Language of publication	Frequency
Physical format	Subscription status
Routing status	Catalogue identifier
Requester name	Action dates
Currency	

4. All access points and strategies of the on-line catalog are available for retrieving records. All acquisition specific fields are also available for retrieval and reporting.

B. Budget

1. Real time update of remaining balances for whole budget, all fund codes and for any subdivision needed.
2. Ability to update any budget information for an item, including allocations and commitments, at any time, even after receipt and cataloguing.
3. No limit on number of funds.
4. Global update of budget information is possible.
5. Separate commitments for monographs, serials, binding, etc may be made.
6. Orders may be generated without committing funds; eg, gifts.
7. Orders from funds with no money are blocked. Manual override for authorized staff.
8. Commitments and orders are carried forward over the fiscal year.
9. Commitments for serials are calculated automatically according to Library defined parameters.
10. Cancellations are credited to appropriate funds at appropriate times. Conversely, reinstatements may reverse credits. Credits may be moved among accounts.

C. Ordering function

1. Order requests and pre-order searching history are maintained for future review.
2. Orders may be generated on paper, on tape, or electronically.
3. New orders are checked against existing files to detect duplicates and expected standing orders.
4. Presence of required order information is validated.
5. Orders may be placed for any material type.
6. Serial order records may be retained indefinitely, and annual data removed at fiscal year end.
7. One purchase order may be linked with multiple bibliographic records; eg, multi-titles, monographic series, package plans.
8. Orders may be placed from vendor notification tapes.
9. Orders may be transferred from one vendor to another, or one memo code to another.
10. Vendors are assigned to orders automatically according to specified parameters. Vendor record flags requirement for prepayment, standing order, direct order, etc.
11. No limit to the number of vendors which may be used. Vendor records are completely modifiable.
12. Library vendor number and Comptroller vendor number are linked.

D. Receiving function

1. Multiple status code are possible for orders. Examples include active, inactive, suspension, cessation, cancellation, sample, reroute, discard, exchange.
2. System deals with full, partial, supplemental, standing order, and approval receipts.
3. Extensive notes facility available for documenting problems and exceptions; eg, returns, licensed material, etc.
4. Replacement 'parts' may be received; eg; single microfiche sheet.
5. Format of item received may be recorded.
6. Reports are produced for items requiring further processing.

E. Serials check-in

1. Individual serial issues are checked in on-line with a minimum of keystrokes.
2. Next expected issue is predicted automatically.
3. Records are easily modifiable. Extensive notes allow tracking of a title's history.
4. A wide variety of issue identifiers is allowed; eg, volume numbers, months, titles.
5. Exception or unexpected issues may be checked in.
6. Issue information is collapsed to volume after binding of pieces.
7. A title may change its library location over time.
8. Retrospective holdings information is maintained.
9. Back order information is maintained for issues.
10. Process slips are generated on demand, including routing slips and bar code labels.
11. Status reports are maintained and acted upon.
    a. Reports may be received electronically from vendors and publishers as well as more traditionally.
    b. Claim schedule is adjusted to data provided by reports.
12. Cancellations may be generated automatically.
    a. Actionable titles are flagged.
    b. Reason for cancellation is stored.
    c. Titles cancelled, completed, and deleted are archived.
13. Claims are generated automatically.
    a. Actionable items are detected and flagged according to Library specified parameters.
    b. A claim may be initiated on demand.
    c. Claim history is tracked.
    d. Renewal notices may be generated.
14. Tables of contents of issues may be entered or scanned.

F. Binding

1. Shipment to and receipt from binders and areas are tracked.
2. Titles are flagged for binding according to library specified criteria.
3. Bindery preparation details are maintained; eg, spine layout format, colour, index, title page, etc.

G. Invoices and payments

1. Invoices may be tracked by vendor number, invoice number, purchase order number, memo code.
2. Invoice data may be updated electronically; eg, vendor magnetic tape.

3. Mechanism exists to flag invoices whose charges exceed order amount by some specified percentage or dollar amount.
4. No restrictions on the number of orders paid on a single invoice.
5. Invoices may draw from multiple accounts.
6. Electronic authorization for Comptroller to issue cheques.
7. Orders may be specified as being single payment only, or multiple payment over time (eg, standing order).
8. Prepayments are allowed, and incomplete pre-paid orders are tracked.
9. Deposit accounts may be maintained.
10. Duplicate payments are forestalled.
11. Refunds are credited to appropriate funds, even when they differ from original order.
12. Payment types are categorized; eg, new, renewal, added, credits, etc.
13. Order type may be changed when processing invoice; eg, monograph to serial
14. Invoice may be paid even when vendor differs or vendor address differs from order.
15. Currency conversions are automatic. History of conversion rates is maintained.
16. Sufficient specificity is available to block payments to incorrect department when institution's name is common; eg, Univ of Toronto, Dept of Math, not Univ of Toronto, Dept of Physics.
17. Postal charges are accommodated.
*18. GST charges are accommodated.

H. History

1. Order records and acquisition information pertaining thereto are retained. Includes active serial subscriptions, inactive titles, complete and catalogued titles, cancelled orders.
2. All acquisition data for Special Collections materials are retained indefinitely to determine provenance.
3. Inactive vendor records may be purged subject to Library needs.
4. The history file may be purged subject to auditor requirements.

I. Reports

1. Automatic reports include tracking of vendor performance, statistical views of ordering and fund activity, accounting information, notifying a requester of an item's arrival, etc.
2. Reports may be generated on demand; eg, budget analyses and forecasts.
3. Staff may design and generate custom reports; eg, list of titles received under restricted accounts such as NPD, calculation of discounts or effect of inflation on a specific fund, a group of funds or for all serials of a given type.
4. Reports indicate what titles are routed to whom, and who is receiving what titles.
5. All notices may be generated on paper, on tape, or electronically; eg, claims, cancellations.

INTER LIBRARY LOANS

INTER-LIBRARY LOANS (ILL)

Required features

1. ILL requests are prepared, transmitted, received and processed interactively.
2. Records of transactions, clients, and suppliers are maintained.
3. Status of ILL requests is continually tracked.
4. National Library ILL protocol is supported.
5. Local call numbers are assigned automatically to incoming requests.

Detailed features checklist for inter-library loans

A. Communication

1. Outgoing requests are formatted automatically to supplier site format whenever possible.
2. Gateway exists to telecommunication services (eg, Envoy, datapac, Tymnet, etc).
3. Requests may be held for transmission during off-peak hours.
4. Incoming requests may be forwarded to other libraries without rekeying data.
5. Messages may be transmitted or received in background mode, allowing for other activities to continue.

B. Housekeeping

1. Directory of suppliers
   a. Contains complete mailing information, including electronic addresses.
   b. May be updated on-line.
   c. An outgoing request automatically retrieves addressing information of supplier from the directory.
2. Directory of clients contains complete mailing information of clients, and their library status.
3. Transaction data base
   a. Contains all ILL transactions.
   b. As requests are processed, their status is automatically updated.
   c. Older requests may be moved to an archive based on library defined parameters.
   d. Transaction records are created automatically from requests coming in, and from requests going out.
   e. Transaction records may be updated manually.
4. Directories and transactions my be searched using same techniques as for the public catalog (ie, boolean, truncated, etc).

C. Preparation of ILL requests

*1. Requests are entered and modified interactively either by staff or patrons on a variety of screen layouts. Completed request messages may be printed or transmitted electronically by staff.
2. Bibliographic data may be copied into request forms from a variety of sources (eg, DOBIS, UTLAS, etc).

3. Full screen editing is supported.
4. Standard data fields are filled in automatically, and restricted fields are verified. Frequently occurring data may be entered in code form for subsequent translation.
5. Requests or portions thereof may be printed or enqueued for printing at any time. Printing may be suspended or cancelled or resumed.
6. Data may be printed in a variety of ways and on a variety of forms, including preprinted ones. Eg, mailing labels, ILL requests, overdue notices, stack retrieval forms, etc.

D. Management Information

1. Statistics are kept automatically. Examples include number of requests transmitted, number of items received, number of requests cancelled, average turnaround time, number of requests received, etc.
2. Follow-up reminders are generated automatically.
3. Reports generated include
   a. Collection development information using main entries of borrowed materials.
   b. Accounting statements.
   c. Statistics.

SYSTEM

SYSTEMS SUPPORT

Detailed checklist for system management (all essential)

A. Vendor support (for purchased system)

1. Thorough and intelligible documentation covering all aspects of the system.
2. Training in system software and hardware. This includes training in error recovery, maintenance of tables, implementation of new releases, trouble shooting, machine operations, etc.
3. Consulting support for hardware and software, preferably on a 24 hour hotline.
4. Ongoing system upgrades. System has separate capability for testing new releases prior to production implementation. New releases come with adequate documentation giving installation instructions, and indication of what has changed.

*5. Vendor supplies complete and current source code to the Library or holds same in escrow.

B. Integration

1. Data are shared among all functions, with the system acting as a unified whole. Duplicate keying of data is minimized.
2. The user interface is consistent across all components of the system. There is a consistent language in all functions.
3. Material is tracked as it is processed through the various functions.
4. Independent data bases or specialized collections not in the catalog are supported; eg. Faculté St. Jean, commercial data bases.
5. Each separate data base has independent control of all parameters appropriate to its operation.
6. Data from all data bases are retrievable by all.
7. Any field in a data base may be made searchable.
8. The system may act as a gateway to other data bases, whether they be local campus ones, or ones external to the university. For example, connection to a commercial data base through a public catalog terminal.
9. Context specific help is available in all functions.

C. Standards

1. Relevant standards supported include
   a. MARC for bibliographic, authority and holdings records.
   *b. TCP/IP for current network access.
   c. ANSI Z39.2-1985 MARC Communications format.
   d. ANSI Z39.47-1985 for the ALA character set.
   e. ANSI Z39.49-1985 for electronic transmission of orders
   f. ANSI Z39.55-198x for computerized serials orders, claims, cancellations, acknowledgements.

*2. Changes to standards and new standards are easily accommodated:
   *a. OSI for future network access.
   *b. Z39.50 for connection among OPACs.

D. **Security**
1. Different classes of users have different views of the data base; ie, data elements are shown on a need to know basis.
2. Functions are protected with appropriate security restrictions. Eg, no password restrictions for on-line catalog, tighter security for viewing confidential data, even tighter for functions which can change the data base.
3. Depending on level of authorization, staff may override any system parameter or transaction.
4. Users may reset their own passwords. There is an unlimited number of accounts available.
5. Accounts where invalid authorization is used may be locked, and security breaches reported.
6. Audit trails are maintained to provide accountability.
7. Terminals are disconnected automatically in time-out situations.
8. Specified functions may be made available to designated terminals only.
9. System manager may override key elements of system security.

E. **Data capture and reports**
1. Updates are reflected immediately in the system with minimal rekeying.
2. On entry into the system, data are validated whenever possible.
3. Keyboard data entry is possible with full screen editing.
4. Scanning of machine readable identifiers is possible in any process
5. Data may be downloaded directly from UTLAS, OCLC, RLIN vendors, and other campus administrative units, such as the Registrar.
6. Off line loading of records is supported.
7. Reports are available in printed form, in machine readable form and on-line.
8. Staff may initiate and design reports
*9. Data may be downloaded to local system. Records are available for downloading in MARC format and standard PC formats.

F. **Installation and operation**
1. The Library may customize the system. Aspects which vary among branches are table or parameter driven.
2. Customizing is centrally controlled through fully documented utilities.
3. The system is not dependent on a single control terminal.
4. There are sufficient utilities to schedule and run all required production jobs easily. These include products, backups, reorganizations, tape loads, reports, etc.
5. Adequate protection mechanisms exist to prevent accidental destruction of files.
6. Statistical system reports are generated indicating usage and performance.
7. A minimum of 500 active terminals are supported. These connect through the campus network and include dial-in terminals as well as hard-wired ones. The number may be expanded easily.

G. **Recovery**
1. Utilities exist for diagnosing and correcting errors, for validating file integrity, for reporting space utilization, etc.
2. Comprehensive backup facilities for the data base and transactions provide capability of restoring files to an earlier state, and reapplying transactions from then to time of failure.
3. Systems personnel may work on problems from remote locations, such as home.
4. Individual modules are available even if the system is down. This implies some form of backup system for each. In particular, the circulation control function must continue working on-line, at least for data collection.

***H. Connectivity and Interfaces**
1. Gateway to external databases and other OPAC's, hence strong interest in Z39.50.
2. Support for IBM 3270 terminals and ASCII dial-in terminals.
3. Ability to download to workstation e.g. DBase format.
4. Ability to download MARC records.
5. Support for LANs.
6. Support for CD-ROM network.
7. Support for Internet (TCP/IP) connection.
8. Support FDDI - (campus fibre backbone network).
9. Ability to create interfaces to campus administrative units such as Registrar, Comptroller, Materials Management (Customs, Inventory, Supplies).

***I. Consortium**
1. Ability to support several libraries in a consortium arrangement; i.e. Union catalog and catalog support.

CIRCULATION SUBSYSTEM NEEDS ASSESSMENT
DRAFT--KB,MS,PW,DH,JB,CP,TK
10/6/89

Reserve Room

1) It should be possible to place items on reserve simply and quickly, even items not yet in the database (e.g. photocopied articles).
2) Students should be able to look up what is on reserve for them
   by course number
   by course title
   by instructor name.
3) It should be possible to edit items easily, including their title.
4) It should be easy to add and delete items from Reserve Room, as instructors constantly change the contents of their required readings folders.
5) Print out of lists should be as flexible as possible. Lists should be organized with professor, course, author, call no., title -- in any order which may be required and under any heading required.
6) Should be able to make mini-bib records directly in the system for photocopies and personal copies with some way to indicate that no permanent full bibliographic record should be downloaded by cataloging.
7) Print circulation cards for use as back-up Reserve, when system is down.

--Like

LS2K basically

--Would like

Ability to print out reserves by professors names with
(1) books in LC Classification,
(2) books in Dewey order,
(3) photocopies in alphabetical order by author.

--Don't Like

Reserve function seems to be more trouble than it is worth when a location only has a small number of reserve items.

Staff Searching/Information Requirements

1) A quick and simple way to identify a journal by title, then by volume or issue. (Circulation points on campus who do not yet circulate journals via LS/2000 or even have their holdings in the database, have not yet experienced what it means to even identify a journal in the system, let alone to get at one particular item from there. Patrons often have incomplete citations; therefore it is imperative to identify an item by as many access points as possible (vol., year), to eliminate confusion of issue vs. part, i.e. what is publisher determined and what is library determined (e.g. issue no. 5 bound in part. no. 2), etc.
2) Circulation staff has to be able to inform the patron on the spot whether an item is checked out, is at the bindery, or should be on the shelf.
3) Publisher as an access point.
4) Ability to limit by location.

Holds/Recalls/Rush Recalls

1) In LS/2000 the HOLD and RESERVE functions are pretty good.

--Like

Having ability to generate notices for these.
Having ability to recall all copies. Having some manual control as we do in LS2k.

--Don't Like

Inability to override a hold on a book easily (must remove hold, then add again).

--Would like

Status display like in NOTIS OPAC screen "Being held for a user. Number of additional recalls."
Having year of MO/DAY displayed. In LS2K, hold stays for more than a year, but would be nice to have the full date displayed.

Cart

--Don't Like

In /AC, user must page through entire list of carts until arriving at the one he/she needs to select. System won't allow user to identify cart name or number at prompt.

Message

Need to have the ability to put messages on patron and item records. On patron records, MESSAGE NEEDS TO APPEAR IMMEDIATELY AFTER NAME in Check Out, Renew, Patron Fines/Fees and other Patron record functions.

Job Management

1) Need to be able to print notices in our own locations.
2) Would like to be able to easily run a list of holdings in one location, which could be arranged either in call number or alphabetical order--by author or title.
i.e. a list of GL/GEOL RARE BK

Patron Registration

1) It should be foolproof w.r.t. avoiding duplicate entries.
2) System should alert staff member when a patron with an existing name or social security number is about to be entered.

Patron Fines/Fees

1) Need call numbers including volume and number, item ID and location information in patron records.
2) Fines/Fees should be itemized in patron status display. Most students don't have access to Patron Fines/Fees, so are unable to tell patrons what items have incurred their fines and fees.

Check-Out

1) It should include the warning to file a check-out before allowing the staff member to change to another function.
2) It would be helpful to have the patron category appear along with the patron's name. This would be useful to identify incorrect circulation periods for faculty vs. students or someone trying use faculty card.
3) Would like to be able to edit a record at check-out and not have it tie up the record.
4) Ability to override so that normally non-circulating items can be circulated (available only to qualified employees).
5) Make it more obvious when due date is changed by the computer--because it adjusted for patron's expiration date or item location.
6) It would be good to have patron's mailing address displayed and editable at point of check out.

--Likes

Get patron's name.
Get fine and overdue block messages.
Ability to override block.
Get message if over book check out limit, but have option to override.
Assigns and displays due date according to patron status.
Ability to override due date.
Get expired message if patron's ID has expired.
Ability to extend due date.
Ability to add mini records at check out.

--Don't Like

At check out, system doesn't automatically go into EDIT A PATRON every time a new patron expiration date is required.

--Would like

Patron category displayed -- UK FACULTY, SPECIAL BORROWER.

If there are messages on a record, they need to display before the fine/overdue blocks messages.

Transactions, should file automatically without having to hit return.!!!!!!!

Like NOTIS ability to print on demand at Circ Desk

-date due slips--especially for reserves
-return receipts--We need this!
-bill and fine receipts
-hold slips
-routing slips

Check-Out Limit

1) This is now determined by patron status. We should have the opportunity to modify such limits patron by patron, perhaps by having a default in the PR function which could be overridden there (while registering or later by editing). A message attached is not always very helpful since it won't come up until after an override is not always possible (after hours, for instance, when no regular staff member is on duty.)

Check-In (Discharge)

--Like

Get title at Check-in.
Get messages put on item records.
Get holds, recalls messages.
Warning message if item belongs to another location.
Fine posted on patron's record.
If item returning from another branch, message appears in OPAC.

--Would like

Transaction to file automatically without having to hit return.
In NOTIS is item not received within specified time period, a notification issued to Circ Staff on daily Operations Report.

Renewals

1) Items should be identified by location and call or volume number on the RE screen, similar or identical to the Patron Activity (Patron's list of checked-out items) screen. In fact Renew Patron Activity might be combined.

2) It should be easy to renew items for a patron--one at a time, or all items currently checked-out. Should be able to wand in bar code, call up item by title, not have to have item on screen if known item, from first renewal screen.

3) Items which are overdue should show up when you first overdue warning--which now comes in the check-out mode or any other function with a patron prompt (in LS/2000). At UK we mention to patrons at this point that one or more items are overdue, and the patron immediately wishes to know what is overdue. It would be nice to be able to do renewals right there without having to change functions later--often only to find out that the items are not ours and we can't renew them after all.

4) Need call number and location information on items in Patron record.

--Like

Having renewal limit, but also ability to override.

--Would Like

Ability to renew item without having to scroll through patron's entire check-outs.

Interlibrary Loan/Intralibrary Loan

Need a system that can do this better than LS/2000.

Item Status

--Like

Ability to see transaction history including Check Outs/Renewals/Internal Use

Screen layout, information on screen

Patron File

--Like

LS2K basically.

--Would like

Ability to have social security number field alerting when duplicate registration.

Visiting Scholar category have lower book limit than visiting faculty, shorter expiration date, shorter loan period.

DO NOT WANT TO BE ABLE TO TRACK PATRON ACTIVITY RETROSPECTIVELY OTHER THAN NUMERICALLY, UNLESS PATRON HAS NOT FULFILLED OBLIGATIONS--OVERDUES AND FINES.

Patron Activity

--Like

Ability to have list of correct activity with title, call number, location, bar code, copy number, due date and have printer to give this to patron.

--Would like

Patron Activity to display chronologically by due date.

Patron Fines/Fees

--Like

LS2K basically, uncluttered screens and good information

--Don't Like

!!!!!Patron Fines/Fees requires too much manual intervention (e.g. necessity of removing separate PLSTC for returned overdue books) ---- There is a way to profile around this now. May be a profile issue with some systems.

--Would like

PLSTC charge to be removed automatically rather than having to do it manually.

Set Status

--Like

Ability to set SNAG, PATRON LOST, CLAIMS RETURNED, DAMAGED and LS2K's features (with some statuses messages are left in system)

Ability to declare LOST

--Don't Like

Having to change status of item to FOUND before declaring it LOST, instead of moving directly from one status to another, like SNAG to FOUND to LOST.

Having to set status of item to PATRON LOST before accepting a payment for book, to keep system from declaring it lost again and recharging the patron.

--Would like

NOT HAVING TO SET STATUS TO "AVAILABLE" BEFORE CAN CHANGE TO DIFFERENT STATUS. (TO BE ABLE TO CHANGE DIRECTLY TO NEW STATUS)

Need other statuses in SS, like WITHDRAWN and MISSING. Now only have LOST, which means it is gone permanently and SNAG which can mean that someone wants to see it after it is located (We used for HOLDS for awhile). WITHDRAWN can mean it was destroyed by dog or flood. MISSING can mean it may still come back.

Shelf Function

--Like

LS2K's internal count

--Would like

Ability to do automated shelf list inventory easily.

Reports

--Don't Like

Problem with MISSING ITEM REPORT--once item was declared LOST, it stayed on the list even if the status was changed to FOUND, if the above procedures weren't followed exactly.

Setting up jobs for notices and reports is very tedious.

In submitting job notices, one must back up 6 steps on each screen to set time/location. Should be able to start from top of screen.

--Would like-

Yearly reports to be fiscal, rather than calendar year.

Ability to give numbers in each patron category.

Ability to change text on notices easily.

Patron Record Access Points

--Like

LS2K has name, social security number and patron ID.

Back Up

--Would like

Ability to assign 90 day due date without having to override each due date.

General Circulation Subsystem Comments

1) Functionality should be consistent throughout the subsystem in
filing--audible/visual warnings to ensure transactions are filed before leaving function.
where warning messages for overdues or fine limits have been reached,
display of messages added by staff on items or patron records--immediate display option. without needing to override (so students can see them too).
anywhere date appears should have month/day/year. (Might be able to do with different format, but all 3 parts of date MUST be there!!!!.

2) Need faster response time, filing time. No matter what features a system has, if the response time is poor, then the system is unacceptable. Response time should be measured from the initiation of the search to the portion of the records that the patron uses (i.e. call no.or in circ. end of records).

3) Need a status for WITHDRAWN.

4) Would like local field for shelf list history notes. System should support multiple locally defined fields that are searchable by staff.

5)$$$$$$$Will the item records for a piece be locked when the item is checked out? (o insure the call number. location doesn't change until the item is back in hand.)

6) Need consistent way to move to next screen throughout system.

LS/2000's Good Points (What we like)

It is a good feature to be able to add a message to a patron/item record.

Locally defined tags that are searchable in user defined staff search groups, such as CSN tag and CT group.

"No Exact Match" is very useful as most people do not know exact titles, etc. "Nearest Match" does at least give them a response to start with.

Combined union catalog and circulation etc. makes serving the public easier. This is no LS2K specific, but the good features of an automated system.

Ability to suppress detail (/DE) and set experience level (/EX) (to display options and lists while training and turn off when comfortable with system).

BEST COPY AVAILABLE

Ability to vary format for full bibliographic record displays in OPAC (i.e. labeled and card format).
Availability of a training database.
Ability to use * to recall previous patron, item on the screen.
Ability to use ' to recall previous bib record.

LS/2000's Weak Points (What we do not like)

Slow response time in peak use periods.
TRANSFER and ITEM RECORD editing take such a long time to file when system is heavily used.
Lack of true Boolean searching.
Print configuration only a screen print and does not all strictly citation printing. This wastes a lot of paper.
Print sequence cumbersome. (When print key can't be programmed.)
Lack of local control--i.e. OCLC having to unlock records.
Can't edit item records when a book is in circulation.
Can't program different fining structures for specific locations. (E.1 will be able to, I think)
The slightest error in punctuation, spacing, etc. in entering a search produces no hits.
Minor spelling errors in searching produce no hits. --Does "nearest match" help this?
!!!!!Non--user--friendly E-Mail. E-Mail also does not interface with BITNET. (Some librarians have several different E-Mail systems to keep up with.)
!!!!!Automatic log-on causes terminal to repeat log-on sequence if button is pressed more than once, which patrons frequently do. System should reject subsequent attempts to log on if terminal is already logged on, and display appropriate message such as TERMINAL IS ALREADY LOGGED ON.
!!!!!Patron records drop off system too quickly if inactive. ---- There is a way to profile around this. May be a profile issue in the next system.
!!!!!Must page through entire list of items checked out to patron in order to renew item(s). ---- Can we currently wand in or type bar code if we have it? What other ways to renew might be helpful?
System occasionally neglects to alert at time of check-in that item is overdue and fine is owed. ---- I still hope this is a bug and not a feature. We will watch it in E.1 release. New system must have reliable check-in alerts.

What Circulation Needs to Convert for the Next System

1) Patron registration records
2) Patron Fine records including outstanding charges and payment/waived fine history
3) Patron Activity (Check-Out) records
4) Mini-records created in Check-Out and Reserve Rooms should convert to new system bib records.

Profile Considerations for a New System

1) No "stop words" except initial articles.
2) No home address, phone #, etc. fields for library staff patron registration.
3) Patron registration format for reciprocal college borrowers requires entry of institution name in address field which is used for addressing notices. Often, these borrowers do not live on campus at that institution.
4) Visiting Scholar category have lower book limit than visiting faculty, shorter expiration date, shorter loan period.
5) PLSTC charge to be removed automatically rather than having to do it manually

OPAC Considerations suggested

1) Limit by location.
2) Ability to search by subject and subject subdivision in single string in one step.
3) Have received patron complaints about author authority. (i.e. same author in two or more different entries). ---- Also Authority/Bibliographic Subsystem
4) Is there a separate index for traced and untraced series--both need to be available to searchers in separate indexes?
5) Acquisitions and Serials Control Systems need to be accessible to all users, on appropriate levels. What is on order, claimed, at bindery, etc. is very important to OPAC users. Staff members may need to access more detailed information.

Systems Administrators--Overall Considerations/Hardware/General Functionality

1) Print-outs of records from OPAC run location and call number together making it awkward to read, (e.g. AC/ARCHHD1234.A2 B67 1987). (translation problem from TV955 or Epson receiving?) Need to test terminals/printers/bar code readers to be used with new system.
2) Ability to program screen print key in new terminals (TV955 can't be programmed and print keys stopped working early).
3) System is down too frequently.
4) Need adequate staff copies of appropriate documentation, that is well-written, easily understood and includes examples. Does documentation include both how system functions and how to use it?
5) Need good training program.
6) Is there be a users group? Is it independent of the vendor?
7) Prefer full screen editing of records, bib/authority/item/patron.
8) Screens in LS2K are uncluttered and easy to read, whereas screens in NOTIS seem cluttered.
9) Acquisitions/Serials Control--Is a central/shared Name Address Directory possible?

Wish List for OPAC capabilites, compared to LS/2000
Steve Savage, PNM
9/18/89

STRENGTHS OF LS/2000

One bibliographic record can be used for all copies and formats of one title, reducing the number of mutliple hits retrieved.
Use of item records for all "localized" information surrounding each title, including call numbers, breakdown of enumeration and chronology, circulating status, locations.
Closest match results in title, call number searches
Beginning a search by journal/newspaper title (this should include all serial types: annuals, monographic sets and series records, periodicals, newspapers, etc.) will be a major, major advantage
Very user friendly public screens: not command driven; use of menus instead of commands; use of relatively normal, everyday English in instructions, menus, etc.
Very large variety of search possibilities
Narrowing search capabilities by a variety of possibilities
Function keys easy to reprogram for variety of uses
Public bibliographic screen display easily changes between traditional card format, and a format using more direct structure that does not need any explanation in order to understand it.
Ability to add messages to patron and item records
Variety of temporary in-house locations
Both home and campus addresses on patron records
Easy access to MARC record; exit from MARC record returns search to public display of same title
LS/MARC format is not drastically different from OCLC/MARC
/SG, /CU, /AT, /ON, /IN, /NE, /MT, /LA, /IB searches
Separate LC Medical subject search and MESH subject search
E-mail is very easy to learn, use
"Comment" ability in e-mail (attaching comment to original message)
Easy access to list of all e-mail address codes

WEAKNESSES OF LS/2000

Lack of satisfactory shelf list function
Very, very, very slow boolean searching that slows down response time for all users
Lack of satisfactory reserve functions: need faculty name, course name, course number, title, author's name searches within reserve arena
/CU search doesn't always hit right, often takes several tries
Need easy, obvious method to call up help screen relevant to whatever step patron is at the moment.
Need simple, clear, everyday-English instructions in more expanded help screen capabilities
Difficulty of using /CU for non-classification call numbers (accession numbers such as "S," "B," etc.)

"Previous screen" command (Control ^) does not always return patron to the previous screen (the system treats entire list of titles retrieved for one search as one screen, even though the list may be 5 screens long)

Insistence by the system for precise punctuation in searches (last name-comma-space-first name-space-middle initial, etc.)

Response time too slow during present periods of heavy use

Too many keys must be hit to give print command: should be just one key, shouldn't need to use one of the programmable keys for this basic function

Printing always and only prints entire screen, rather than giving the possibility to print just the title, location, call number, and availability status

All labeled keys on the keyboard do not perform the function indicated by their labels (the "Print Screen" key is one example)

In searches for patron records, the screen listing multiple hits for the search should indicate faculty's department.

Very difficult to identify serial title in lists of multiple hits: requires patron know a serial title is repeated under "Author" column

Only a portion of title appears because of lack of room on screen (screen listing multiple hits); occasionally this portion is not enough to identify item

In hits identified because of added entries for certain titles (such as "Time" in added entry for Time-Life books, etc.), title appearing on screen of multiple hits is indistinguishable (ten lines listed with just the title "Time"); in such cases, also need title proper, subtitle, or some such further information

Conditions that created need for re-indexing!!

E-mail slows down response time too much

E-mail uses line edit, rather than edit mode similar to that used by word processing programs

Default to "copy one" rather than default to simply no copy number at all

"c.001" "c.002," etc. after call number confuses patrons; they think its some strange portion of the classification number; even the spelled out word "copy" would be an improvement; best solution would be to have no copy indication when only one copy is recorded in database

Patron registration records for graduate students should have some sort of provision (a determined field, not just a note) to indicate they have faculty permission to check out materials in the faculty name (in addition to present method of indicating research assistants on the faculty record)

In searching patrons records, if a keystroke is incorrect, must start search from scratch, rather than returning to previous step

Cannot escape out of boolean search once the "SEARCHING..." indication appears on the screen

Cannot escape out of "logon loops" when the system is running through numerous key strokes performed while keyboard was locked, etc.

DESIRED FEATURES NOT IN LS/2000

Need "page forward" or "page backward" capability (as compared to "previous screen" capability

Need to be able begin or narrow search by location

Need LC subject headings list online, with closest match search strategy and browsing capability ; LC classification schedule online, with same search capabilities, would be helpful also

Need to be able to narrow, or begin, search for serial by date of publication unless the year is the beginning or ending date of publication (need to be able to search by year in the middle of a run of publication)

Need to be able to narrow, or begin, search by date, or enumeration, of holdings for serials

Need more variety of boolean searches: "or" search, but especially "not" search for narrowing, as well as the present "and"

Need to be able to begin, or narrow, a search by category of reference tool such as "index," "bibliography," "guide," etc., rather than keyword in title, subject subdivision, etc.

SUGGESTIONS FOR NEW OPAC September 29, 1989
King Reference Department

A. SEARCH PROTOCOLS

1. Author/title searches on added entries. This may not be so crucial for books, but for sound recordings, it is absolutely essential. Since sound recordings can have up to 25+ author/title added entries for composer/uniform title of pieces recorded, patrons who want to search for sound recordings of same MUST have access via this route. In addition, professors assign students to listen to a certain performer's rendition of a certain composition. So combining personal name added entries for the performer and the author/title added entries for the composition itself MUST be available. LS/2000 is totally useless for music searching (talk to music faculty/music catalogers/music libraries if you want reinforcement of this!). /AT speeds up search time for known items and probably reduces processing time.

2. True Boolean searching: patrons are now used to this in other databases. The searching must be comprehensive, simple and fast. Under no conditions should we accept the hierarchical structure LS/2000 requires. Boolean searching is especially important, but could be dangerous for inexperienced users.

3. Subject searching: must be able to enter the subject and subject subdivisions in the initial search. This strategy was possible in the card catalog and all search strategies available in the card catalog should be available in an online catalog.

4. Search by location: a union online catalog is great, as evidenced by the success of the OCLC database, but sometimes the smaller environment is preferred by patrons. Even OCLC is beginning to market smaller subsets of its database for patrons.

5. New books file: accommodates the need many professors feel is a necessity.

6. The title portions of author/title added entries should be included in title searches.

7. Keep lots of different ways to search. More menu screens should be available, up front. Most patrons won't know which to choose (e.g., corporate vs. conference)--keeping search groups broad alleviates wrong choices. The LS screens tend to give only skeletal information. Much could be improved.

8. Keyword PHRASE or within range of words,
i.e. superconductivity w/5 cadmium

9. Strip punctuation so searcher's inclusion of punctuation and spacing doesn't matter.

10. Allow direct searching of subfield b's in corporate searches. In LS/2000, it only works in the umbrella author search and not in the specific corporate name search.

11. Ignore initial articles in title searches, in all languages. Don't require the patron to know that they should not be entered. In general, the system should be more forgiving.

12. Keep variety of narrowing fields.

13. Allow spacing or no spacing in call number searches.

14. Double-post (phrase and single-word) all subject headings and subdivisions. For example-subject heading phrases are NOT searchable as keywords in LS2K, but many subdivisions are. We DID make certain phrases work as keyWORDS, but it's confusing to users.

15. Keep truncation searching.

16. Make serial title searching more direct.
e.g., Atlantic monthly as a title yields 16+ titles, but it isn't obvious which is the serial record.

17. Keep /AT and /TK search keys from the OCLC model.

B. OPAC DISPLAY

1. Quick response time. Patrons are used to personal computer speed response time. Asking them to accept slow to excruciatingly slow response time only reinforces negative images of libraries and librarians.

2. Browse mode (forwards and backwards) available on searches, but especially in the subject search area. Since a controlled vocabulary must be addressed, a browse mode similar to that on INFOTRAC would be appreciated. Also, authoritative cross-references via an online thesaurus would be necessary.

3. Always display the call number for a title before having the "collapsed" display LS/2000 uses. When more than 20 item records are available for display, LS asks you for more information rather than giving the call number per location, which for periodicals IS often all patrons want. SOMETIMES they want to know if we have a specific volume. Getting this information should be an option, AFTER the call number has been given.

4. Diacritics and special characters available on all OPAC terminals. With the Televideos now at patron sites, the special characters which combine the vowels AE and OE cannot display, so the patrons think we have lost our minds, created dirty records for the words oeuvres (displays as uvres) and aeschylean (displays as schylean), etc.

5. Availability status should include WITHDRAWN. Date due doesn't let patrons know about recall option-a "further info." prompt could explain options for material currently checked out. Perhaps patrons could place their own HOLDS/RECALLS. Also, SNAG is uninformative. Another choice of wording would be appropriate.

6. Call number/availability information should be able to occupy as much space as needed. The 50 characters of display space on the LS/2000 OPAC does not approximate the 80+ characters available on the actual item record. In addition, the classification number and book number areas especially need to be expanded so that the index COULD function as a proper shelflist. Reference staff around the campus may need to consult a shelflist index to find browsing call numbers for patrons.

7. Search result screens should include call numbers and locations.

8. Keep reverse chronological order in displays.

9. Allow jumping screens in alphabetical listing (ahead and back)

10. Keep /N capability. But better yet, allow to choose any number without returning to list.

11. Browse backwards as well as forwards when closest match is displayed.

C. OTHER AMENITIES

1. Have the LCSH & MeSH headings in the online catalog for consultation. Expensive, but worth it. Online vocabulary a requirement when you consider we will be promoting this online catalog to off-site users.

2. HELP screens: for example, in the subject search, patrons should be told upfront that they MUST verify their subjects in LCSH/MeSH. HELP information should replicate the quality of HELP patrons encounter in other computer products, (DAI on CD-ROM). Drop-down or window help screens would be great. We should also have the capability to create our own HELP screens, modifying them locally as we see fit.

3. Buffer zone similar to OCLC's where you can call up something that displayed several screens back.

4. Keep closest match, but modify it so you don't need to scroll through several screens to view likely matches. e.g, Romeo and Juliet as a subject calls up several entries beginning with Rome.

5. When loading database, clean up all authorities (author/uniform title/subject) before bringing up the system and develop a way for updated headings to be loaded as well. Negotiate with some vendor for continuing quality control additions. Make sure references are available in umbrella groups (author, title, subject) as well as in the unique search groups themselves (personal NAME, corporate NAME, conference NAME). This is a basic type of HELP for patrons that was available in the card catalog and we should not accept a system that does not handle authority files well.

6. Keep global changes, but make it possible for many changes to be performed at once. For example, in LS/2000 only one heading change could be made (and indexed) before other heading changes could be requested. This meant for the OPAC that the patrons would be given one cross reference at a time (very inefficient and misleading).

7. Initial log-on screens should provide explanatory information: what is included in database, what is not, how to locate what is not in database, explanations of codes used, etc. But don't put too much info.-it gets in the way of experienced searchers. Option: turn off initial INFO screens as we now do for experienced users.

8. Community bulletin board for the library and campus.

9. Screen printing regardless of cursor placement.

10. Terminals should serve as gateways to other databases with the same basic search protocols for all databases.

11. Overbuy on everything since with LS/2000, we discovered very early on that we were outgrowing it quicker than expected.

12. When doing ADD/EDITing of item records, EDITing item records should not prevent you from ADDing item records. Even in a Reference department, such bibliographic control standards have an impact.

13. Turn off log on function key once terminal is connected to the system.

OPAC NEEDS ASSESSMENT -- Branch Librarians

STRENGTHS OF LS/2000 (KEEP)

1. One bibliographic record can be used for all copies and formats of one title, reducing the number of multiple hits retrieved
2. Use of individual item records incorporating local information such as location, circulation status, call number, price, barcode, etc.
3. System displays the closest match to user input instead of saying "no match found"
4. Uncluttered display screens
5. Accommodates both direct commands and menu-driven choices; menus are profilable
6. Very large variety of search options
7. Narrowing search capabilities by a variety of possibilities
8. Function keys easy to reprogram for variety of uses
9. Public bibliographic screen display easily changes between traditional card format and a labelled format that assists the user in identifying what he's looking at
10. Variety of locations
11. Easy access to MARC record and ability to return to public display of same title
12. Truncation searching allowed
13. /SG, CU, AT, ON, IN, NE, MT, LA, IB searches
14. Keep /AT and TK search keys from the OCLC model
15. Keep reverse chronological order in displays

WEAKNESSES OF LS/2000 (IMPROVE)

1. Help messages/screens -- best situation is to have capability to create our own, modifying them as we see fit; might also want to add brief explanatory information at the initial log-on screen with the option of seeing more detail on subsequent screens; help needs to be easy and obvious access in simple and clear language
2. Dates in brief title listing can be misleading (e.g. 19uu=1900) and confusing to some patrons (e.g. open entry originally published in 1976, but patron looking for v.4 1989; would be great if you could search for a serial by year even if it was in the middle of a run of publication)
3. Brief title listing -- include more characters of the title so similar titles can be distinguished; try to indicate which titles are from 245 rather than some other field; indicate material type (AV, book, serial, etc.); only authors from 100 field are listed, but would be helpful if editors were listed for title main entries
4. Display of item information -- put on first screen; allow as much space as needed for identification (e.g. long call numbers); free text status field (or add more such as Withdrawn); "Snag" needs a better choice of wording; if item is checked out, give patrons more information about options (ask Circ to recall, place a hold, etc.)

5. Always allow users to easily return to brief title display if they choose wrong title (currently, this is not possible in AB, AI, IS)
6. Move 830's (series, uniform title) from UT uniform title index to SR and SE series indexes; include non-traced series (490's) in both series indexes; build separate series/subseries authorities
7. Ideally, call numbers need to sort in true shelflist order
8. Full boolean capability and searching that does not slow down response time for all users
9. Response time needs to be quick; should not slow down during periods of heavy system use
10. Improve browsing: browse backwards as well as forwards when closest match displayed; keep /N capability, but better yet allow selection of multiple reference numbers as does OCLC; browse forwards and backwards for all searches; allow jumping of screens when you page forward or backward
11. Need to be able to screen print regardless of cursor placement; do any terminals do partial printing (title, location, call number)??
12. /AT index needs to include t subfield from added entries
13. /TI index needs to include title portion of author/title added entries
14. System should ignore initial articles in title searches, in all languages; don't require patron to know they should not be entered; in general system should be more forgiving
15. Allow direct searching of subfield b in all corporate searches (currently, only works in umbrella author search and not in specific corporate name search)
16. Summary holdings for serials should be by location as it is if you use SC350 rather than the LS summary and additionally the call number should be listed
17. Search result screens should include locations and call numbers
18. Keep closest match, but modify it so you don't need to scrool through several screens to view likely matches
19. Lack of satisfactory reserve functions: need faculty name, course name, course number, title, author's name searches within reserve arena
20. /CU search doesn't always hit right, often takes several tries
21. Difficulty of using /CU for non-classification call numbers (accession numbers such as "S", "B", etc.)
22. Default to "copy one" rather than default to simply no copy number at all
23. "c.001", "c.002", etc. after call number confuses patrons; they think it's some strange portion of the classification number; even the spelled out word "copy" would be an improvement; best solution would be to have no copy indication when only one copy is recorded in database
24. In searcing patrons records, if a keystroke is incorrect, must start search from scratch, rather than returning to previous step

ADD

1. Separate indexes for Names as authors and Names as subjects
2. Three separate authority-controlled search groups for MeSH, LC and local subject headings; full authority control; cross references; complete global changes including subdivisions regardless of heading
3. Add contents notes for sound recordings to the keyword index; free text searching of note fields
4. Acquisitions date index or some means of having the system provide a new acquisitions list
5. Journal/Newspaper title index to improve serials searching
6. Always label subjects so patrons can spot them quickly
7. Ignore punctuation (especially in title fields)
8. Ignore spacing in call number searches and last names (e.g. Van Huss, VanHuss)
9. Search by publisher as a narrowing field
10. Search by subject/subj subdivision as one command
11. Search by location (begin and narrow)
12. Community bulletin board for library & campus
13. Keyword PHRASE or within range of words, i.e. superconductivity w/5 cadmium
14. Double-post (phrase and single-word) all subject headings and subdivisions. For example, subject heading phrases are not searchable as keywords in LS
15. Have the LCSH & MeSH headings in the online catalog for consultation
16. Buffer zone similar to OCLC's where you can call up something that displayed several screens back
17. Terminals should serve as gateways to other databases with the same basic search protocols for all databases
18. LC classification schedule online
19. Need to be able to narrow, or begin, search by date, or enumeration, of holdings for serials
20. Need to be able to begin, or narrow, a search by category of reference tool such as "index", "bibliography" etc. (take info from fixed field)

MISCELLANEOUS

1. Keep ability to add messages to patron and item records
2. Keep both home and campus addresses on patron records
3. Current E-Mail is very easy to learn, use; "Comment" ability is a strength; easy access to list of all e-mail address codes; E-mail should not slow down response time; current E-Mail uses line edit, but should have edit mode similar to word processing programs
4. All labeled keys on keyboard should perform the function indicated ("Print Screen" key is an example of a key that doesn't work altho labeled)
5. In searches for patron records, the screen listing multiple hits for the search should indicate faculty's department
6. Patron registration records for graduate students should have some sort of provision (a determined field, not just a

note) to indicate they have faculty permission to check out materials in the faculty name (in addition to present method of indicating research assistants on the faculty record)

7. Should be able to escape out of boolean search after "SEARCHING..." indication appears on screen
8. Should be able to escape out of "logon loops" when system is running through numerous key strokes performed while keyboard was locked, etc.
9. That LS/MARC format is not drastically different from OCLC/MARC is a strength
10. Need a system with enough storage and an operating system that will allow us to load the GPO tapes
11. Diacritics and special characters should be available on ALL OPAC terminals
12. When loading database, clean up all authorities before bringing up the system and develop a way for updated headings to be loaded as well. Negotiate with some vendor for continuing quality control additions. Make sure references are available in umbrella groups as well as in the unique search groups themselves.
13. Overbuy on everything since with LS we discovered very early that we were outgrowing it quicker than expected
14. When doing ADD/EDITing of item records, editing item records should not prevent you from adding item records. Even in a Reference department, such bibliographic control standards have an impact.
15. Turn off log on fuction key once terminal is connected to the system
16. Have a backup to the online system for when it's down

1/20/89

TO: Miko Pattie

FROM: Kate Seago -- Bibliographic maintenance Dept.

RE: Authority Control Issues for Requirement Report

1. Does the system support downloading authority records to the local system?

2. Does the system allow for locally built cross references added to LC authority records?

3. Does the system prevent or suppress potential blind references?

4. Does the system support global editing, especially in authority records?
   Does it support global editing to the subfield level (like OCLC-MARC subject records - the complete heading/subheading)?
   Is it possible to edit all subfield X misspellings of HISTROY-to HISTORY regardless of the main heading? (Sort of a spell checker for the free-floating subheadings)

5. Does the system support multiple subject index authority control? (e.g. having separate Local, Library of Congress, and Medical Subject Headings)
   Do the different subject heading systems have independent authority control?
   Do the different subject heading systems have separate displayable indexes?

6. Does the system support multiple See references form a single heading? (e.g. ALA, See AMERICAN LIBRARY ASSOCIATION, AMERICAN LAW ASSOCIATION,...)

7. Does the system support the MARC standard authority record? If not, can it accept it and convert it to its local format?

8. Does the system allow for local non LC authority records containing main heading, subdivisions, see references, see also references and notes?

9. Does the system allow <u>all</u> authority records on the system to be updated and/or corrected?

10. Does the system allow for notes both on LC authorities and local authorities? Can they be displayed to the patron?

11. How is the relationship between series and subseries handled? Or the relationship between main subject headings and subdivisions? Separate authority records for each combination or only one record?

12. Does the system allow editing of MARC tags, indicators, and field delimiters within the authority system rather than having to make these changes in each bib. record as they appear?

13. Can clientele handle by the authority system? If so, how? Can we edit them?

9/19/89
Mary M

ACQUISITIONS SYSTEM SPECIFICATIONS

("*" indicates required capability)

SIZE

* - is able to handle 32,000 or more order records at one time

* - is able to accommodate 880 or more funds at one time

* - is able to generate comprehensive reports on this number of funds

- number of separate payments that can be recorded with order record (for easy review of payment history)?

INTERFACING

* - interfaces with library's serials control, patron access catalog and circulation modules

* - displays order status on OPAC
  - which ones?
  - option to add localized message appropriate to status

* - interfaces with bibliographic utilities. Which ones?
  - searching
  - downloading records
  - placement of orders

- transfers records from online or offline resource files of LC/MARC records

- interfaces with individual vendors. Which ones?
  - able to place orders online directly with vendors
  - able to receive invoices online from vendors
  - able to load offline electronic invoices
  - able to receive and download bibliographic data and invoices from vendors for books scheduled to be shipped on approval plans (interactive process)
  - able to access vendor's inventory

- Comply with which library and automation standards?

CONFIGURATION

- micro based or main system?

- configured as WAN (wide area network) (so all ordering sites could use same system)?
  - limitations?
  - can each ordering site prepare its own profile specifications?

- configured as LAN (local area network)?
  - maximum number of workstations
  - physical proximity restrictions

ORDERING

* - searches and downloads records from library's own catalog/in-process file

* - searches bibliographic utility databases

* - maintains vendor name/address file

* - transmits orders, claims, cancellations, requests for information, etc. electronically

* - sorts and prints out purchase orders, claims, etc., if desired

- checks for unwanted duplication and alerts operator

* - handles keyed orders as well as downloaded records and displays provisional record on OPAC

* - handles firm orders, standing orders, approval plans, subscriptions, memberships, prepaids, gifts and exchanges for monographs and serials

- handles orders for non-bibliographic as well as bibliographic materials (e.g. supplies)

- derives new records from a preexisting records

- order numbers have built in check digits to prevent miskeying during receipt/payment

* - has "constant data" feature to be employed as needed (vendor, selector, fund, date)

- handles multiple copy orders with multiple funds and locations

* - orders can be easily redirected to another vendor if original vendor is unable to supply

* - vendor reports can be easily entered onto order records
  - restriction on number and size of fields?
  - manually/electronically?

* - generates claims list for review

* - provides for claim period adjustments to fit individual order (pre pub; rush; etc.)

- claim period can be adjusted to vendor report

- inactive order data can be purged to an offline order history file and recorded on microfiche. Pointers are left in the online records to inform the user of the existence of such offline data

* - full screen editing is possible

* - supplies default values

RECEIVING/PAYING/ACCOUNTING

* - easily handles "received part" shipments

- receipt/payment can be handled in one transaction, if desired

- maximum size of invoice file?
  - sort and list by which access points?

- when paying invoice, system checks to see that all of items add up to the total keyed

* - alerts operator when fund is reaching encumbrance limit/refuses payment when limit is overexpended

* - charges can be made directly to funds, bypassing bibliographic orders

* - money can be transferred from one fund to another

- converts foreign currency at time of order and receipt

- fund codes restricted by what character length?

- prints payment vouchers, if desired

MONITORING

- access points include: main entry, added entries (including series & subject), author/title, bibliographic record number, purchase order number, variant titles, ISSN, ISBN, system supplied number, medium, other?

- in-process file updated instantaneously

- what status choices are available? can track through cataloging, bindery?

- exception/error reports are generated

REPORTS

- mnemonic codes trigger appropriate correspondence with codes exploded into full-text paragraphs on correspondence

- additional information may be added to correspondence

- memos may be generated using any data element, or elements, in system

* - produces management reports based on bibliographic records, vendors, vendor performance/discount, funds, orders, claims, tracking materials

- can graph expenditures on terminal as well as print out

* - produces title by title fund activity reports

- prints all data within order record, as desired

Mary McLaren (First Draft 9/15/89)

University at Albany Libraries

Specifications

For

An Online Library System

March 1992

Prepared by

University at Albany
State University of New York
1400 Washington Avenue
Albany, New York 12222

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SYSTEMS AND PROCEDURES EXCHANGE CENTER

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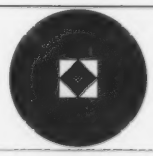
ASSOCIATION OF RESEARCH LIBRARIES  OFFICE OF MANAGEMENT SERVICES

OLIS
Ohio Library & Information System

Connecting People, Libraries, & Information for Ohio's Future

The Ohio Board of Regents

Overview

The twenty-first Century will come to Ohio's citizens nine years early in 1991 with the advent of a statewide library and information system that will be the most powerful yet to be developed. To be known as the Ohio Library and Information System (OLIS), the new system will offer the most effective tool yet created for locating and retrieving printed and electronic information. Through the use of leading-edge computer technologies, Ohio's major university libraries will appear to users as a single resource comprising more than 19 million volumes. OLIS will also provide unparalleled access to the rapidly increasing array of information sources available in electronic formats.

OLIS will play a significant role in Ohio's economic and educational development. Ohio is home to a premier group of international providers of electronic information; the addition of OLIS will serve to reinforce and extend Ohio's world leadership as an "information state." As today's severe shortage of trained scientists and engineers becomes more acute in the mid 1990s, OLIS will be a potent recruiting tool for Ohio's universities and research industry. Research and access to information are vital to the economy of the future; OLIS will provide quick and comprehensive access to the latest information that researchers, both in universities and in business, will require if they are to remain competitive.

OLIS will operate on several levels.

- Centrally, OLIS will be a computer system that includes a software "search engine" capable of organizing, sorting, and retrieving vast quantities of information stored within the state and around the world. Ohio's high-speed supercomputer network, OARnet, will link this central computer to university computers.
- The campus systems will support local online library catalogs and related services, and provide sophisticated computer workstations designed to assist both beginning and advanced researchers in navigating the expanding information universe. Faculty and students from all OLIS universities will have direct and almost immediate access to materials held by the state's principal academic libraries. Most printed documents will be delivered to campus researchers within days; smaller documents will be received in hours by telefacsimile; and materials in electronic formats will be transmitted in minutes.
- Beyond the campuses, researchers in business, industry, and government, as well as all Ohioans, will have easy access to the system's state-of-the-art information searching software.

OLIS will provide the best of both the technological and organizational worlds—the flexibility and responsiveness of a decentralized system and the highly efficient use of resources provided by a massive central unit. OLIS will bring economies of scale to such sharable resources as computer storage and high volume access to national information centers. Yet, even though the total system available to users will be of unsurpassed dimensions, local control will be maximized. Campuses will be able to tailor a wide range of capabilities to their particular needs and will have the opportunity to focus on areas of greatest local importance.

Efficiency and synergy are key words for OLIS. The system will be exceptionally efficient, both in managing existing resources to increase quality, and in coping with the complex and rapidly changing demands of the future. At the same time, OLIS will promote higher levels of cooperation among Ohio's universities and between higher education and industry.

Why does this magnificent applied science which saves work and makes life easier bring us so little happiness? The simple answer runs: Because we have not yet learned to make sensible use of it.

—Albert Einstein

Introduction

The Information Problem

The ways in which our society finds and uses information are changing dramatically. A great deal of published material is now appearing in electronic formats, either as computer databases of bewildering variety and purpose or, at an accelerating pace, as "full text" databases that replace the printed journal article or book entirely. The volume of traditional published library materials—books and journals—is also expanding rapidly. But the cost of acquiring, cataloging, and storing these items is increasing at a rate that outstrips the resources of both public and private research universities. A single library, academic or public, can no longer expect to have a comprehensive collection of materials even in highly specialized areas.

People who need regular access to information—students, faculty, and researchers in business, industry, and government—cannot keep up with the ever-increasing volume of published material and with the changes in the way this material is transmitted. Even experts in specialized areas are daunted by the challenge of identifying the sources they need and mastering the complex and varying formats in which those sources appear. People investigating a field that is new to them—students or faculty conducting interdisciplinary research, for example—are often unable to cope without the assistance of scarce specialists.

Finally, all users of information are plagued by the difficulty of securing rapid access to the material they need.

How will OLIS actually make a difference in the everyday lives of Ohioans? Some brief examples of the ways in which people will benefit from the system are included here and on the following pages.

A physician in a rural hospital clinic affiliated with one of the State's colleges of medicine is treating a patient who has just undergone surgery for breast cancer. The patient has been taking lithium to control depression, and her physician would like to continue her cancer treatment with the drug tamoxifen but wants to verify that there will be no harmful interaction between the two drugs.

Using the campus network to dial into OLIS, he accesses a medical database such as MEDLINE. A search query "tamoxifen and lithium" locates two articles. One is in a journal available on the computer in full-text format. OLIS quickly retrieves this article, which discusses the possible side effects of both drugs but not possible interactions. The physician requests that the other article be sent to him by telefacsimile. It reaches him the next morning and affirms that there is no significant interaction between the two drugs.

The OLIS Solution

The Ohio Library and Information System (OLIS) will be the most powerful statewide library and information system in the nation and will play a major part in improving the quality of education and research in Ohio. OLIS will respond effectively to all of the problems posed by the emerging "information society," connecting people, libraries, and information in a network of unparalleled sophistication and efficiency.

- OLIS will link university libraries throughout the State so that they will appear to the user as a single resource of some 19 million volumes. Students, faculty, and other researchers will have direct access to a collection of published knowledge far larger than that otherwise available.
- OLIS will be a gateway to the rapidly expanding world of information stored in electronic formats. Users will gain access to these new sources through the same computers they use for online library catalogs.
- OLIS will use advanced software and hardware technology to provide researchers with a comprehensive and intelligent guide to the effective use of library and information resources.
- OLIS will recognize that the need to know is immediate. Researchers who want to borrow materials from other OLIS libraries will learn the status of those materials within minutes. They will receive loaned books and similar materials within several days; journal articles and other short texts sent by telefacsimile will be received within 24 hours.
- OLIS will provide for more cost-effective use of existing resources.
  - Because most materials held by OLIS libraries will be available to all other participating libraries within a few days, faculty, librarians, and administrators will have the option of managing the purchase of new books and journals in a significantly more efficient manner. Universities will be able to rely on others in the system for items of peripheral interest at their institution and will therefore be able to focus available funds on materials of particular importance to their core programs.
  - Subscriptions for computer-based information services can be negotiated on a statewide basis rather than at an institutional level.
  - Ohio's public and principal private research universities now purchase expensive software maintenance agreements and provide highly skilled staff to support several different library computer systems from different vendors. OLIS will bring economies of scale to both.
- OLIS will be important to Ohio's economy both directly and indirectly. Ohio is often called an information state because it is home to a sizable number of concerns that provide information in electronic formats—among them Chemical Abstracts, Compuserve, Mead Data General, and OCLC. OLIS will be a valuable addition to this dynamic group. As an information resource for all Ohioans, OLIS will also be of enormous benefit to existing and future research-based manufacturing corporations and to the growing services sector. Finally, by attracting outstanding students and faculty and helping them win research grants and contracts, OLIS will significantly strengthen higher education in Ohio. The rapid transfer of research knowledge to the classroom environment will help to attract and retain those leading elements of business and industry that rely upon an educated workforce.

How Is OLIS Different From Existing Systems?

Q There are electronic union catalogs that represent the collections of a number of libraries—examples are available through OCLC and the Research Library Information Network (RLIN). But they are complex systems designed for library professionals and are cumbersome, even intimidating, to the ordinary library user. Will OLIS be different?

A Yes, OLIS will be designed to be readily accessible to every user and will accommodate people at all levels of skill.

Q Current electronic union catalogs describe what a library owns, but do not indicate whether an item is available. Users must first request an interlibrary loan and then wait at least two to three weeks to learn whether the material can actually be borrowed. And delivery of requests takes even longer. Will OLIS be more helpful?

A OLIS will instantly advise users about the availability of material and will provide delivery of an item within several days. If the material is in electronic form, delivery can take place within minutes.

Q Powerful specialized databases—such as the MEDLINE catalog of medical publications and the SCISEARCH catalog of scientific publications—are tremendously valuable to researchers, students, and scholars. But many of them are expensive to use and most require that users learn a new "protocol," or search language. How will OLIS be an improvement?

A By contracting cooperatively for access to a number of the databases users most want, OLIS will be able to reduce substantially the cost of database access for OLIS participants. Through its specially developed software, OLIS will allow users to search nearly all its databases with only one protocol.

Q Some statewide library systems already exist—in California, Florida, and Colorado, for example—but most provide only limited services. Illinois has a sophisticated system that provides effective service in catalog access, circulation, and delivery of library materials. How will OLIS be different?

A OLIS will build on the experience of others, but it will also take advantage of the most recent advances in computer technology. As a consequence, OLIS will provide more local options for use of the system, and will have greater power and flexibility in integrating new electronic information sources.

The Structure of OLIS

OLIS refers both to a library and information system and to the computer hardware and software designed to support that system. The hardware and software will be located at a central site and at each member library. The software will perform different operations at the central and campus sites, but at both locations it will serve as a search "engine," organizing, sorting, and retrieving information. The communications network for OLIS—in other words, the highways on which the information will travel around the State—will be provided by the Ohio Academic Resources Network (OARnet). OARnet will use the communication links between computers at the member libraries and the central OLIS site to transfer data between institutions. The primary information resource available on OLIS will be the central (or union) catalog, which contains information on all books and journals held by participating libraries.

Participation in OLIS

Access to the OLIS union catalog will be completely open and unrestricted. Anyone will be able to search OLIS to identify and locate materials held by OLIS libraries. Users affiliated with these libraries will also be able to initiate online requests for document delivery. Those not affiliated with a participating library can identify, locate, and request materials through interlibrary loan at their own library.

It is important to distinguish between "access" to and "use" of OLIS as these terms are used in reference to the system. "Access" to the OLIS union catalog will be available to all Ohioans through campus computer workstations and terminals and through dial-in access from personal computers equipped with standardized OLIS software. Comprehensive "use" of OLIS, including borrowing and document delivery, will begin with the largest campus libraries. Because of the need to develop the union catalog, which will be the primary database for the system, the first phase will include only the university libraries. Subsequent phases will include interested two-year and independent colleges. The architecture of OLIS is open and permits the addition of new members at various levels of participation without restructuring.

What OLIS Does

The description of OLIS that follows provides additional detail about how it functions as an information, library, and computer system. Its design combines innovative information management for researchers with an efficient library system. The ways in which OLIS will benefit Ohio's educational and economic future are discussed at the conclusion of this report.

OLIS as a Link

The central function of OLIS will be to provide access to catalog records and circulation information for books and journals held by OLIS libraries. A search for a particular book or volume/issue of a journal will begin with a query to the user's campus library system. If the material is not available locally, the computer will transmit the request to the OLIS Central system to see if it can be located in the union catalog.

OLIS is designed to help users get needed information as quickly as possible. If the system can locate an available copy of a desired item, authorized users can request that the item be delivered to their campus library. If the item in question is a journal article, the user will be asked to identify the specific articles needed and the format desired—photocopy, FAX, or digitized copy. Digitized copies will then be transmitted directly to a computer workstation via the Ohio Academic Resources Network. Books and article photocopies will be delivered by van within several days. Facsimile transmission to the user's campus can take place within hours.

OLIS as a Gateway

OLIS will have a large number of key databases available in electronic format. Examples of the kinds of databases that may be available include PsycINFO, MEDLINE, McGraw Encyclopedia of Science and Technology and Dun's Market Identifiers. The user will be able to search the system's principal databases with the same techniques employed for searching the OLIS catalog. Some databases will be stored and maintained on OLIS Central, the computer that coordinates the communications between member libraries. Others may be located at campus OLIS sites. Some databases may be purchased or made available through commercial or government distribution; and still others may be created at a campus library—e.g., an index of manuscripts held in a special collections department of a campus library.

A University chemist will be working with E.P.I.C., one of the Edison Program's "technology centers" that link corporations, universities, and federal laboratories in Ohio. Although her primary research interests have been in polymer chemistry, she now expects to become more involved in polymer manufacturing.

She visits the university library to review the latest information on microcomputer applications in polymer manufacturing. Working with the librarian, she identifies several databases, develops a search protocol on the topic, and conducts a search on the spot. She also orders the search to be repeated monthly to find newly-published articles and books or conference proceedings that are added to the library's collection. She plans to download each month's search results to her microcomputer, creating a working bibliography from which she can order specific materials to be sent to her office.

Like bibliographic databases, full-text files will be stored at various sites, but OLIS Central will either hold or provide gateway access to a large percentage of them. As electronic publishing becomes more widespread, OLIS libraries are likely to buy and create full-text files to satisfy the specialized scholarly and research interests of their faculties and the instructional needs of their students. Thus, full-text electronic versions of certain periodicals in law, medicine, public administration, artificial intelligence, or robotics, for example, might be acquired and maintained by campus libraries to meet special campus needs on a continuing basis. These specialized databases would then also be available generally to participating OLIS libraries.

The procedures for searching full-text databases and retrieving information from them will be consistent with those for bibliographic records, but the user will require special numerical and graphical analysis tools for manipulating some non-bibliographic databases. Further, some future databases may require sophisticated tools for dealing with information stored in other formats; OLIS may have, for example, compressed digital audio for works of music or speeches, and compressed digital video for an art museum collection.

OLIS as a Guide

Whether entered through a library terminal, a microcomputer, or a workstation, OLIS will be very easy to use. It will rely upon a simple, robust, and powerful software program designed to encourage people to use the services provided by the system. The layout and organization of screens and menus will be clear, logical, and intuitive. The OLIS software will also be designed to interact with the most powerful, sophisticated, and advanced features of state-of-the-art microcomputers and workstations. The OLIS software, which provides users with a sophisticated searching tool, will be available to all users; however, the capacity and sophistication of the computer will determine the level and the actual features of the OLIS system available to the user.

A University collection development librarian has received a purchase recommendation for *The History of Costume*, a new multivolume slide set that costs $5,000. Although her university has a strong undergraduate program in history, costume history is peripheral to the interests of most of the faculty. The librarian questions whether the expenditure would be justified by local use.

Before making a final decision, the librarian searches the catalog and acquisition records in OLIS; no other library owns or has ordered the set. She then checks the Online Conspectus (an OLIS database that highlights collection strengths of OLIS libraries) to identify the institutions with strong collections in costume history. Contacting her colleagues at these institutions via OLIS's electronic mail service, she learns that another university has plans to purchase the set. Since OLIS will provide access to the material, she decides not to buy the set. She also notifies the recommendation source and other potential users of the material's future availability through OLIS.

- Terminals, like those now in most libraries, will provide a choice of menu or command–driven approaches to a search of both the union catalog and OLIS–mounted databases. An online "help" program will offer detailed information about specific selections or commands.
- In addition to the searching and help capabilities available through terminals, microcomputers offer the option of using custom software (available from OLIS) that allows the use of a mouse or other pointing device–driven interfaces. Microcomputer users will be able to employ the power of their local systems to run OLIS in a "window" while operating other software, and save the results of their search directly to programs such as a database or a word processing program.
- In addition to all of the other capabilities, the OLIS–W software will use the resources of more powerful microcomputers (usually called workstations) to assist researchers in designing effective and efficient searches. OLIS–W will also permit the development of specialized sub programs and will allow users to create interfaces which complement their styles of work.

Microcomputers and workstations will be able to connect to the system through local area networks or through remote (dial–up) connections.

Users can begin by selecting any of three services on the OLIS system. The options available will be determined by the type of machine used to enter the system.

Help

OLIS will be designed so that both the average user with little background in online computer searching and the expert user will be able to make use of the same system. The average user will be encouraged to become more skilled, while the expert user with advanced software and hardware will be able to make immediate use of the more sophisticated strategies OLIS offers. OLIS will provide a simple tutorial, or help screens, to answer questions and solve problems.

Search

The OLIS search protocols will enable all users to identify information in both the campus library database and the OLIS union catalog. Using the same search strategy, the OLIS protocols will query integrated campus and centrally–mounted databases.

With the OLIS–W software, the user will be able to adapt the search protocols to query specialized databases. The system will thus be an intelligent partner for the researcher, suggesting other search strategies, relevant databases, and search terms, but it will also enable researchers to "browse" through its contents just as they might browse through the shelves in a library.

In addition, OLIS–W will recognize that different users have different cognitive styles when working on computers. Some prefer access through direct commands, while others prefer access through menus. Users may also want search results delivered in various formats. With the advanced OLIS software, users will be able to organize search results into various scholarly and research formats or sort the results into major categories. OLIS will also have the ability to deliver search results in sound, video display, datafiles, or hard copy output. The software will be designed so that individual users can tailor it to suit their own needs and preferences.

A geoscientist needs to consult the most current information on the impact of resource exploitation on global climatic change in order to complete a grant proposal to the National Science Foundation.

Working in his lab at the university, he uses OLIS as a gateway to a number of external databases, including NASA's STAR, the Life Sciences Collection, Environmental Fate, and GeoAbs. He transfers the most pertinent abstracts from these databases onto his personal computer.

As his proposal takes shape, he decides that several maps would help illustrate the project. Through OLIS, he reviews the catalog records of the map collections in OLIS libraries and requests copies of three separate maps from three different libraries.

Gateways to External Information Providers

The gateways will provide a simple method for users to reach databases not mounted on OLIS. Users may have to learn the query language and search protocols of different external information providers that have not been integrated into the OLIS query language, but the methods used to reach those databases through OLIS will be standardized.

OLIS as a Library System

The OLIS system architecture will be highly decentralized. Each participating campus will have its own library systems that will be connected to the others via a centrally-located system (OLIS Central) equipped with a powerful search engine. OLIS Central will manage the union catalog of bibliographic records collectively maintained by the campus libraries. OLIS Central will also route requests, loan transactions, messages, etc., to participating campus systems, retrieve detailed holdings and availability information from those campus systems, and transmit this information from one campus to another.

The acquisition of books and other materials is primarily a campus function; however, titles on order will be added to the OLIS Central catalog when the order is placed, and these records can be included in the response to a search.

Like the acquisition of books, the management of serials is a campus function. The OLIS campus system will handle all check-in, claiming, binding, and related functions. When a serial issue is checked in on one OLIS campus system, OLIS Central can immediately include the new issue in its screen display when responding to a search request from any of the participating campus systems.

Each campus will catalog its own new books, journals, audio-visual materials, etc., using bibliographic utilities such as OCLC, and the completed catalog record will then be transmitted to OLIS Central for addition to the union catalog. The cataloging of books new to one campus but already held by another will be accomplished by adding the new campus code to the catalog record in OLIS Central. OLIS Central will then transmit an electronic copy of the record to the online catalog at the campus acquiring the books. For both types of cataloging, OLIS Central will verify that the names and/or subject index terms associated with the book are established and valid. When the names and/or subject terms are determined to be new to a given campus catalog, OLIS Central will transmit to that catalog the cross-references that are associated with these new subject and/or name entries.

The OLIS system will manage all aspects of circulation for the OLIS libraries, including campus library and intra-OLIS circulation, interlibrary loan with non-OLIS libraries, and document delivery (including telefacsimile) between OLIS libraries. The system will thus enhance library service to researchers and students by delivering information to them in all available formats and from all available sources.

Under OLIS, user records will be confidential, but the system will permit libraries to block service to the few who may abuse their OLIS privileges. OLIS will also provide electronic messaging for library staff to communicate with each other and with OLIS users.

A student must write a paper on "how political considerations influenced Dwight D. Eisenhower's military decisions during World War II," but is unsure how to begin.

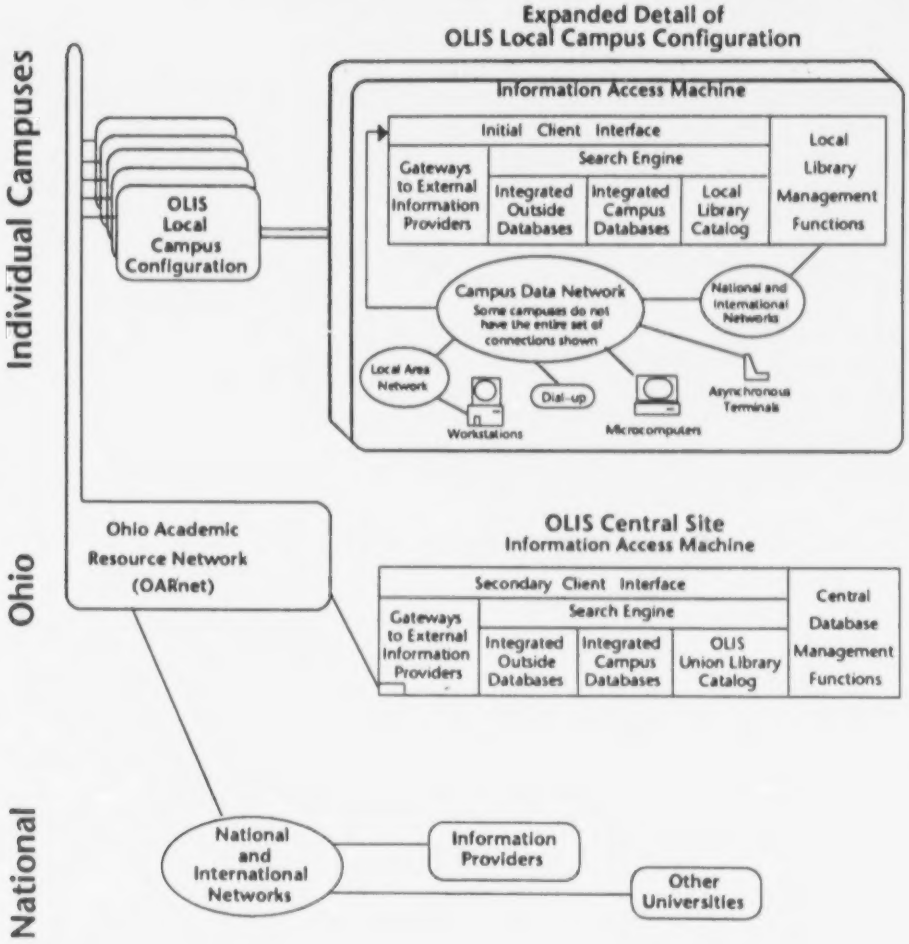
At an OLIS workstation, she keys in "Dwight D. Eisenhower." The screen tells her there are over 2,000 subject references to Eisenhower. It suggests she narrow the topic and offers several options. The student chooses a chronological approach and the workstation screen then displays categories from 1941 to 1960, with over 1,000 entries. She selects 1941 to 1945. OLIS identifies a number of books with chapters covering that time period. She "pages" through the chapter headings of several book titles. Since her paper is due within the week, she orders three books currently available on her own campus and picks them up the next day.

OLIS System Architecture & Strategy

The software search engine at OLIS Central will be capable of organizing, sorting, and retrieving vast amounts of information stored within the state and around the world. The campus library systems that are integrated into OLIS will support their own catalogs and related library functions and maintain sophisticated computer workstations designed to assist both beginning and advanced users in retrieving information.

From a systems perspective, OLIS will provide the best overall technological approach to both a library system and an innovative information system. It will be sufficiently decentralized to be flexible and responsive and sufficiently centralized to provide economies of scale. However, even though the total system available to users and librarians will be of unsurpassed dimensions, each campus will maintain control of its own systems and will retain a significant measure of autonomy. Consequently, if one campus library wants a database

OLIS Networking Overview



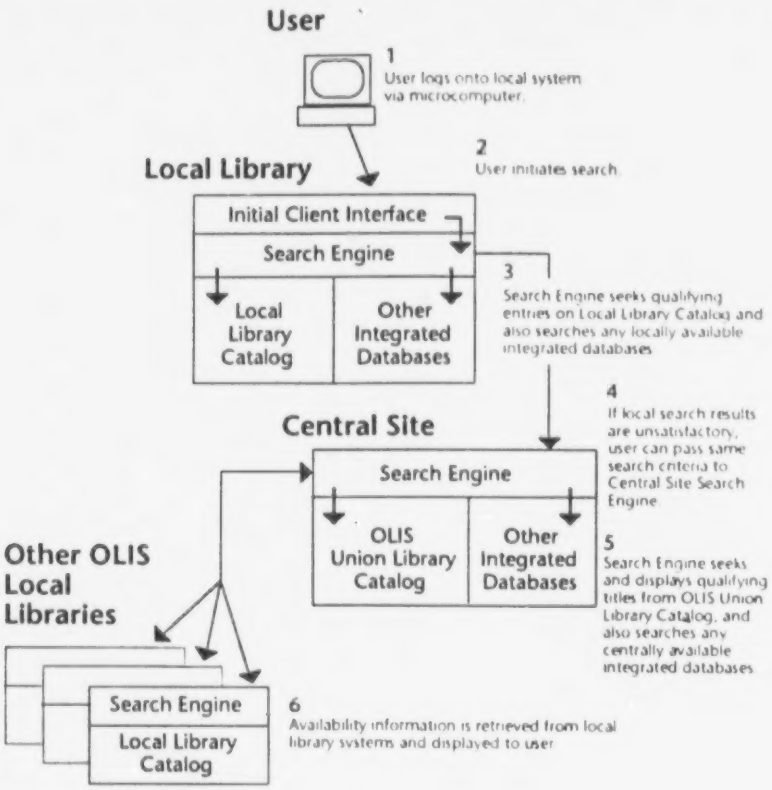
that OLIS at large does not want, that library can purchase and install the database. Similarly, if a centrally available database becomes tremendously popular, copies of it can be installed at several campus sites to minimize communications and processing bottlenecks. Individual institutions will thus be able to tailor a wide range of system capabilities to meet particular campus needs, while the central system will continually improve and enhance the services available to all the participating campuses.

OLIS System and Networking Overview

The "OLIS Networking Overview" on the facing page presents an overall view of the scope of OLIS. The three-tiered network ranges from the individual campuses to OLIS Central and extends into national and international networks. In basic terms, OLIS will be the heart of the library system network in Ohio, providing both access to information and day-to-day library services. In a broader sense, OLIS will be an information utility for the twenty-first century, helping users locate and retrieve data in useful formats from databases anywhere in the networked world.

The "OLIS User Search Example" below illustrates the information flows required for a subject-based search, traced here through a simplified OLIS model. Once a search is completed, users will be able to initiate a loan from one OLIS library to their own campus library.

OLIS User Search Example


User
1
User logs onto local system via microcomputer.
Local Library
2
User initiates search.
Initial Client Interface
Search Engine
Local Library Catalog
Other Integrated Databases
3
Search Engine seeks qualifying entries on Local Library Catalog and also searches any locally available integrated databases.
4
If local search results are unsatisfactory, user can pass same search criteria to Central Site Search Engine.
Central Site
Search Engine
OLIS Union Library Catalog
Other Integrated Databases
5
Search Engine seeks and displays qualifying titles from OLIS Union Library Catalog, and also searches any centrally available integrated databases.
Other OLIS Local Libraries
Search Engine
Local Library Catalog
6
Availability information is retrieved from local library systems and displayed to user.

The Benefits of OLIS

Interdisciplinary and Collaborative Research

OLIS will support research and instruction in Ohio in ways other than providing assistance to individual faculty members or students. Some additional dimensions of use can be projected, but others will likely not appear until the system is in the hands of its users. For example, as users voluntarily identify their areas of specialization via keyword interest profiles, OLIS will be able to notify them by electronic mail of new acquisitions in their areas of interest and will even be able to send them new bibliographic entries and full-text files automatically.

In turn, the user keyword profiles could become another OLIS database that would be searched with the same protocols employed for other OLIS files. Graduate students could search the user profile database to identify other graduate students or faculty in Ohio with similar research interests. A company could search the user profile database to identify faculty who have listed interests that suggest that they might be of assistance on a research project. Thus, OLIS will provide information of interest to individual faculty and students, and will also foster collaboration among other researchers and Ohio's businesses and industries.

A law professor is writing a treatise on labor law and wants to review both the legal and social science literature on collective bargaining.

From her home computer, she connects via modem to OLIS and uses it as a gateway to databases such as LEXIS, CIS (an index of publications of the U.S. Congress), and PAIS International (an index of public policy materials in the social sciences). After examining lists of primary and secondary legal sources, she looks for historical material on a key statute.

Keying in a simple request, she orders a number of government documents and monographs that are available from her own campus library and from other OLIS libraries. She will be billed electronically for any direct charges.

Collection Management and Development

OLIS will give Ohio the opportunity to establish a model program to define, collect, and use institutional and statewide circulation and collection data to enhance campus collection planning. The system will also provide a mechanism to implement cooperative collection management among participating libraries. OLIS has the great potential to minimize unnecessary duplication among library collections and to enable each library to focus on specific collection areas.

Business and Industry

OLIS will create an information and technology infrastructure that will support industry and the State's economic development activities. The information needs of industry are as critical as those of faculty and students. Marketing, product development, and production, as well as research and development, require quick and easy access to information. OLIS will help Ohio attract and retain the most innovative businesses and industries by supporting commercial and industrial research and development efforts and by fostering partnerships between researchers in industry and researchers in the State's colleges and universities. OLIS will be good business as well as good educational policy.

Economies of Scale

With its massive central unit OLIS will make highly efficient use of existing resources. The system will also bring economies of scale to sharable resources like computer storage and will enable the State's campus libraries to reap the benefits of high-volume access to national information centers.

Summary

The Ohio Library and Information System is designed to respond effectively and efficiently to the information needs of Ohioans both today and in the future. OLIS will provide a state-of-the-art library system and an innovative information system that can grow with the State's needs into the twenty-first century. By linking the State's campus libraries into a single union catalog, OLIS will increase the impact of Ohio's investment in information resources. Building on the foundation established by the communications network of OARnet, OLIS will also encourage collaborative research not only on college and university campuses but between the business sector and higher education.

Appendices

Background: Planning and Development

Ohio can be considered a pioneer in library automation. The Ohio State University began integrating its campus library systems at an early date. In the 1960s, State funds supported the development of OCLC, then called the Ohio College Library Center. OCLC has since grown into an international organization with a database of more than 20 million entries representing material held at over 10,000 libraries. The private sector in Ohio has also been actively involved in library automation. Organizations and companies like Battelle Laboratories, Mead Data General, OHIONET, Predicasts, and Chemical Abstract Services continue to develop and provide new products and services to the nation's libraries.

OLIS, the latest cooperative venture of the State's university libraries and the Board of Regents, grew out of the Ohio Board of Regents' Library Study Committee recommendations in 1987. The Library Study Committee was appointed by Chancellor William B. Coulter in 1986 to make recommendations on how the State could respond to a rising number of requests for new library facilities. Although the committee's principal focus was on the question of facilities and on library storage, its charge provided for the examination of any option that might improve the quality of academic library services and operations. In addition to a recommendation for the adoption of remote storage, the committee recommended that "the State of Ohio implement as expeditiously as possible a statewide electronic catalog system."

In response to this recommendation, the Board established a Steering Committee representing librarians, faculty, administrators, and computer systems managers from campuses throughout Ohio. The Steering Committee created three task forces to report to it: one on the users' view; one representing the librarians' view; and the final taskforce presenting the system managers' view. Through meetings, public hearings, and conferences, the Steering Committee subsequently prepared and distributed a planning paper (November 1988); an RFI (February 1989) and an RFP (August 1989) for the OLIS system. Separate but integrated projects for workstation hardware and software and for the communications network are under development as well.

An aide to an Ohio legislator notes an increasing number of phone calls about the condition of nursing homes and care of the elderly in the legislator's home district. The aide is asked to prepare a policy report on the subject.

Dialing into OLIS through the State Library, the aide enters the subject "aging" and selects government reports and scholarly books from the OLIS libraries. Still logged onto OLIS, the aide examines databases like Sociological Abstracts, PsycINFO, and PAIS International for recent journal articles. The aide then requests telefacsimile copies of selected articles from sociology, psychology, economics, and political science.

My interest is in the future, because I am going to spend my life there.

—Charles Kettering

Ohio Library and Information System

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System Review Need

The Library's current online system operates on hardware from Tandem Computers with software developed by the Triangle Research Libraries Network (TRLN), a cooperative project of Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill.

The TRLN libraries are faced with major changes by the end of 1993. The prospect of these major changes necessarily required a review of TRLN activities and goals and a review of how to best achieve those goals.

The major changes include:

1. The Library is required to replace the Tandem hardware it currently uses. Tandem Computers, Inc. has announced that newer releases of their proprietary operating system, Guardian, will not operate on the Tandem TXP processors on which we currently operate. Tandem will not support the current release of the Guardian operating system (release C30) after December 31, 1993. This means that the Library's hardware must be replaced no later than December 31, 1993 in order to continue operating with the existing software.

2. With format integration, the MARC (MAchine-Readable Cataloging) formats will undergo significant changes, and these changes will be implemented by the Library of Congress and OCLC Online Computer Library Center, Inc. in 1993.

3. In the past few years, the National Information Standards Organization (NISO) and the American National Standards Institute (ANSI) have published a series of standards affecting the retrieval and content of data in online systems. Important newer standards include:

   Z39.2 USMARC format for holdings and locations
   Z39.50 American national standard for information retrieval service definition and protocol specification for library applications
   Z39.58 Common command language for online interactive information retrieval
   ANSI RS-232C for serial communications

> The current TRLN Bibliographic Information System does not comply with these newer standards. Compliance would require significant development effort by the limited resources available in the TRLN staff. However, compliance with these standards is fundamental in the evolution of information networks and is a necessary step for increased cooperation and the sharing of data among research centers.

In addition, while TRLN staff have developed a system which provides unique features that other systems do not have, the current TRLN Bibliographic Information System lacks functionality which is common in most vendor-based systems. These functions include keyword searching, sophisticated searching techniques, the ability to mount other information databases, reserve room functionality, and authority control.

Presented with these challenges, the directors of the TRLN libraries concluded that a systematic review of vendor systems was in order and undertook that review beginning in 1990.

Initial System Review

In March 1990, the directors of the TRLN libraries worked with a consultant, Rob McGee from RMG Associates (Chicago,IL), a well-known library automation consultant, to review the library automation marketplace and the goals of the TRLN libraries. Mr. McGee provided the libraries with an overview of the marketplace, discussed developing trends, reviewed current TRLN assumptions, and provided some cost estimates on new systems.

In August 1990, based upon contact information about vendors published in "Annual Survey of Automated Library System Vendors," Library Systems Newsletter, v. X, no. 3 (March 1990) and "The Online Patron Access Catalog: The Keystone in Library Automation," Library Technology Reports (September-October 1989), the TRLN Interim Director sent a letter and one-page questionnaire to thirty-six vendors. The letter requested copies of printed brochures, a bibliography of articles published about their software, and a list of current users. The questionnaire requested contact information, information about different software modules and their availability, and information on the size of systems currently supported.

TRLN received responses from eighteen vendors; in four of these responses, the vendors stated that they would not supply the information requested. No response was received from the other eighteen vendors.

Copies of the information provided were distributed to each campus for review by library systems staff. Once contact was made, individual vendors started contacting TRLN and the institutions for meetings and to arrange demonstrations. Meetings were scheduled with the vendors who requested them but no demonstrations were conducted at this time since it was considered to be too preliminary.

In the meantime, the TRLN AUL Forum was working on a position paper which would outline the relationship which TRLN wanted to form with a vendor and which sketched the principles on which the vendor's system might develop. The committee completed the final version of "Concept Paper: The Future Online System at TRLN" in November 1990. The "Concept Paper" was accepted and endorsed by the directors of the libraries and by the TRLN Governing Board at their meeting in December 1990.

On December 17th, a letter from the TRLN Interim Director and a copy of the "Concept Paper" were sent to the same thirty-six vendors who had been contacted in August. The letter requested a response to six specific questions, solicited comment on the principles discussed in the "Concept Paper" either on specific points or in general, and requested a response by January 14, 1991.

Responses were received from fourteen software vendors and two hardware vendors who responded in support of their software partners. One of the software vendors responded specifically that it was not interested in establishing the type of development partnership envisioned in the "Concept Paper" and that it would not provide access to its source code. This vendor was eliminated from further consideration and an evaluation of the remaining thirteen responses proceeded.

Evaluation of Responses

Starting on January 14th, the evaluation process proceeded on two tracks. Using the "Concept Paper", the TRLN AUL Forum had identified fourteen criteria in three categories on which to evaluate the information supplied by the vendors in response to TRLN's August and December requests. The criteria were:

VENDOR CRITERIA	Financially secure, stable vendor Commitment to libraries/education market Presence on campuses Co-development arrangements
TECHNICAL CRITERIA	Standards compliance Modern software engineering techniques Access to/by other devices Interface flexibility
FUNCTIONAL CRITERIA	Standard library functions Integrated access to information Database maintenance Comprehensive searching capabilities Flexible user interface Report/management information

On the first track, the criteria and their definitions were distributed to all library staff, selected faculty members, and certain staff on campus in computer-related or networking positions. Each of those contacted was asked to assign a weight to each of the criteria based upon their relative importance to that individual on a scale from one (low) to ten (high). The same weight could be assigned to different criterion since the request was not to rank or prioritize the criterion.

At the same time, on the second track, the TRLN Vendor Evaluation Committee began to review the responses and to rate the responses on a scale from minus five (-5) to plus five (+5) for the same fourteen criteria. The first job for the Committee was to define for each criterion what the scale meant. The Assignment of Criteria defines for each criterion what the range is and provides a common basis for the assignment of a rating to a vendor's response on that particular point.

For instance, with the first criterion, if a vendor had ten years or more experience in the business of library automation; the vendor's proposed system had a large, stable base of users with a good rate of new installations; the vendor was financially secure and profitable with no past history of reorganizations or bankruptcies; and the administrative personnel and structure was stable, then the Committee would rate that vendor at a plus five (+5) for that criterion.

Using the document on the assignment of criteria, the TRLN Vendor Evaluation Committee proceeded to rate each of the thirteen vendor responses for each of the fourteen criterion. Once the ratings had been assigned, the results of the weights assigned by various faculty and staff were applied and a final "score" was tallied.

Further Evaluation

DRA and NOTIS received the highest scores and there was a significant difference between these two and the next logical grouping which included four software systems. Based upon these scores, which were essentially identical at all three universities, the directors of the libraries invited both Data Research Associates (DRA) and NOTIS Systems to demonstrate their systems on each campus and to prepare a cost proposal based upon data supplied for each university.

All library staff and others who had participated in the process of assigning weights to the criteria were invited to attend the demonstrations. Each person in attendance was asked to supply a written evaluation of both demonstrations. In addition, evening meetings were scheduled with each vendor to meet with networking representatives from the three campuses and to discuss connectivity issues.

Both vendors provided information that allowed library staff to access the databases of their users, and each provided access to a test file which allowed for a wider range of functionality since its use would not affect a "live" operation. In addition, staff from North Carolina State University visited Tufts University (a DRA site), the University of Florida (a NOTIS user), and the Florida Center for Library Automation (a NOTIS site). The Head of Library Systems at UNC-CH attended the DRA Users' Group meeting and visited Washington University (a NOTIS site) in St. Louis, Missouri.

Cost proposals were received from both vendors by February 25th. Both vendors proposed several configurations, a central configuration and one or more decentralized configurations. On March 1st, both the hardware and software vendors involved made formal presentations to the library directors and the TRLN Governing Board in which they offered discounts above the standard university agreements as inducements.

The proposed configurations from both vendors were discussed with representatives from other data processing areas on campus which included users of both hardware platforms. Specific review meetings were held on each proposal which included campus representatives, library staff, and a representative from the hardware/software vendor. These meetings attempted to resolve questions such as why a specific processor was recommended, whether or not it would meet the specific requirements, and what was needed that was not included. The meetings proved quite valuable and resulted in a continual refinement of the hardware configurations proposed.

Five-year cost projections were prepared for each vendor using similar functionality and configurations. Based upon these projections, the DRA software with the Digital Equipment hardware was slightly less expensive than the proposed NOTIS software with IBM hardware. These cost projections did not include personnel costs.

In summarizing the evaluations from this campus and reading the evaluations from the other campuses, questions arose from the different impressions people had of the two systems and what the systems did or did not do. Consequently, meetings were scheduled for both vendors with representatives from each of the three universities to answer outstanding questions, to clarify misunderstandings, and to discuss observations made during site visits/discussions with the vendor's users.

In the meantime, the evaluations from the system demonstrations were collected and summarized. While both systems had their positive and negative points, the evaluations indicated a slight preference for the functionality of the Data Research Associates system. The Associate University Librarians indicated a similar preference from their individual areas of responsibility.

TRLN Recommendation

The evaluation of the two vendors produced the same result on all three campuses. The evaluation of vendors was an extensive process which involved participation by all levels of staff at each institution. These efforts resulted in a review which, we feel, was both comprehensive and impartial. As a result of this process, given the criteria evaluation scores, the staff evaluation of functionality, and projected cost, the library directors chose to recommend Data Research Associates as their vendor of choice to the TRLN Governing Board.

TUCASI Proposal

The TRLN Governing Board then directed staff to prepare a grant proposal to the Triangle Universities Center for Advanced Studies, Inc. (TUCASI) to request support for the purchase of the library system software from Data Research Associates, Inc. Using the information gathered during the above process, the proposal was submitted to TUCASI in May 1991. The TUCASI Board met in June 1991 and approved the request which was then referred to its parent organization, the Triangle Research Foundation, for final approval. The Triangle Research Foundation approved the request in September 1991. TRLN received its first payment in early 1992.

Contract

Following meetings with DRA in September, DRA agreed to proceed to develop its implementation of the MARC format for holdings and locations. The TRLN universities signed a contract with DRA for the purchase of their library automation software in March 1992 after DRA had demonstrated progress in implementing the MARC format which was so important to us and our database conversion.

Other Libraries Experiences

Using PACS-L, during the summer of 1992, I will solicit information from other librarians on processes that they have used to select a new system. I will include a report on these during my presentation in Denver.

Concept Paper
The Future Online System at TRLN

**An article describing the use of this position paper in the system procurement process at TRLN will appear in Advances in Library Automation and Networking, volume 5.

11/27/90

Concept Paper
The Future Online System at TRLN
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Concept Paper
The Future Online System at TRLN

Introduction

The bibliographic information system (BIS) developed by the Triangle Research Libraries Network (TRLN) has served as an adequate online catalog for the TRLN libraries for six years. Like all online catalogs of its generation, BIS falls short of the ideal library retrieval system. BIS's particular pattern of strengths and weaknesses results from limited resources for development and necessary trade-off decisions made in the course of design and implementation. In spite of a number of excellent features, BIS does not represent a promising platform for developing the fully functioning library information system of the future, primarily for the following reasons:

1. the high cost of local development
2. an expensive hardware platform
3. major gaps in retrieval and authority control functionality
4. software that is difficult to modify to incorporate the new features

For these reasons TRLN has decided to adopt a new strategy to the implementation of the next generations of its online systems.

Briefly, the new approach involves acquiring systems from commercial vendors. In doing so, TRLN will of course consider current functionality and performance of systems, but its primary goal will be to establish mutually beneficial relationships with innovative software firms that share TRLN's vision of future library systems. At the same time TRLN will seek to establish a similar relationship with a hardware supplier with a strong commitment to library applications and to the educational and library market. This document describes this strategy in more detail and delineates TRLN's general vision of future library systems. It is not intended to serve as a specifications document for the evaluation of candidate systems.

Assumptions

The underlying assumption at this time is that TRLN will not identify a system that will meet all of its requirements. We share the perception of numerous librarians that state-of-the-art systems offered by commercial firms still do not fully meet research library needs. Many difficult trade-off decisions will have to be made with respect to the current functionality of systems evaluated.

Not the least of these decisions will relate to the extent to which TRLN must sacrifice the strengths and special features of BIS not commonly found in commercial systems in order to gain expanded functionality in other areas. Examples of the special qualities of BIS include:

1. the distributed network design
2. a record validation system that is possibly the most advanced in the field
3. superior capabilities for normalizing index terms and search statements, and indexing special characters

4. refined capabilities for handling complex holding mixtures (different call numbers of multiple and the same location; accompanying materials, etc.)

It is acknowledged that the new strategy may result in the loss of some of the outstanding bibliographic qualities of BIS, at least in terms of current capabilities. However, these capabilities will be sacrificed only for the sake of larger strategic advantages that place TRLN in a more favorable position with respect to the transition to future generations of online information systems.

A prominent general assumption about future library systems is that interconnectivity and flexibility will be their most critical characteristics. Interconnectivity can be defined in several contexts; on each campus, the library system should be a major component, if not the integrating core, of a campus-wide information system; it should also serve as a gateway to external databases, including full text systems, as well as document delivery and information services of various types; and it must be easily interfaced with workstations to serve as the source of data for individualized electronic files and electronic document delivery systems. Flexibility implies, among other things, hospitality to records from many different sources, including OCLC, LC, GPO, indexing services, as well as locally created records. Through flexibility and interconnectivity, the system's primary data file will not only be more varied and expansive, but the system will allow users access to a variety of data sources beyond those representing the libraries' own collections. It is in this area that a new system should redress some of the major limitations of BIS. In the general assessment of candidate systems, the technical implications of this concern for interconnectivity and flexibility involve issues of standards, hardware compatibility, networking capabilities, etc., that may in some cases override issue of present performance in support of specific library functions.

A third assumption is that the local networking environment will continue to be a paramount consideration. The linked online catalog supports shared use of collections and programs of cooperative collection development that constitute the heart of TRLN collaboration. A principal criterion for judging candidate systems will be their potential for supporting these programs, either in terms of present networking capacity or negotiated agreements concerning future development. Support for networked architecture, however, does not require that TRLN mirror the existing configuration for operations, with computers and systems management staff at each TRLN site, but rather that the catalogs functionally and architecturally embody desirable network features, even if the implementation is on a single computer or several computers housed centrally. Of all current BIS functionality, the networking capability will be the one that must be preserved in some form in a new system.

A fourth assumption is that the future TRLN system need not be a fully integrated library system as traditionally conceived. Rather, the total system may consist of a series of interfaced components chosen on the basis of their performance in supporting specific functions (online catalog, acquisitions, serials control, etc.). Thus a major consideration in selecting systems may be their hardware compatibility and potential for interfacing with components already in place.

A fifth assumption is that successful acquisition and implementation of commercial systems will turn on the ability of the TRLN libraries to meet needs and build acceptance throughout the university communities. For this reason system acquisition, development, and implementation will be done in cooperation with the university computing communities, in particular with the university computing centers. The libraries will draw on the particular expertise of the campus computing communities in hardware performance, application performance and efficiency, distributed computing and connectivity, awareness of standards and standards compliance, and operating systems. It is important that the libraries keep the computing centers, along with other campus constituencies, fully informed on progress and developments during the search and evaluation process. While the libraries must build

strong connections with campus computing centers, the relationships they establish should ensure that final judgements and decisions on systems acquisitions and development priorities rest with the TRLN libraries.

The final assumption is closely associated with networking and flexibility. It is assumed that the appropriate arrangement with a software vendor will include involvement of TRLN in the design of future systems and some degree of codevelopment. It is anticipated that joint development efforts will present the opportunity to apply TRLN's software engineering expertise in networking and processing support as well as shape a significant library system of the future. Collaborative arrangements assume that vendors will be "in for the long haul"; vendors with stable market and financial histories will become principal candidates to supply systems support. Purchased systems and the vendor relationships that come with them will fill two roles: as a production platform for support of routine library operations, and as a dynamic, flexible development and experiment platform open to improvements as required by the TRLN libraries' constituencies. It is further assumed that the principal areas for TRLN participation will be in embellishing and customizing the system's capability for interconnectivity and flexibility, or development "on the fringes" of the primary applications software system. This assumption is based on a principle that we believe may well be the ideal goal of future library systems and library/vendor relationships: the acquisition of a general systems capability designed so that the user interface and interconnectivity with other local systems is largely under user control. The goal will be a cost-effective combination of standardization and customization. The vendors' level of interest in working in this direction will be an important criterion in the selection process.

The weight of these assumptions has strong implications for the systems evaluation process. *Taken together, these assumptions imply that the decision of which system to acquire will be conceived as a strategic decision,* not one based on close item-by-item comparison of current systems capabilities. It will be a decision with respect to how and under what conditions the TRLN libraries will proceed in the future to provide successive iterations of online systems rather that a choice between specific configurations of functionality and performance as they are currently offered in the systems marketplace.

State of the Art and Future OPAC Functionality

The functionality of an OPAC is the extent to which the system meets programmatic requirements for a library's production environment. Commercial offerings judged most competitive for the research library market offer capabilities recognized as "state of the art" to meet those needs. "State of the art" in this sense means capabilities that have come to be regarded as essential features for research library systems. The TRLN libraries assume that TRLN cannot develop BIS in a cost-effective manner to provide such essential features commonly available in commercial systems.

Commercial products appropriate for research libraries provide "state-of-the-art" feature sets similar in scope, refinement, and capacity, but no commercial system provides a feature set that fully meets research library needs. Differences between these commercial offerings, while sometimes significant, do not change their relative ability to meet the programmatic requirements of the TRLN libraries. Because of their similarity, analysis of appropriate products will weight configurations of functionality and performance considerably less than previous reviews undertaken by TRLN. Factors that will assume a larger role include the vendor's accommodation for joint development, the degree to which a product's design and implementation permits changes to meet future system requirements, and the performance of "state-of-the-art" systems in life-cycle cost models.

"State of the art" features and considerations

1. *Standards compliance:* Software and hardware comply with promulgated and de facto standards that are well established for library applications systems, and show evidence of compliance with emerging standards important to systems migration and peer-to-peer data communications. A partial and by no means exhaustive list of such standards includes:

   - NISO Z39.2-1985 MARC format
   - NISO Z39.58 Common Command Language (ISO/CCL standard)
   - Other NISO Z39 standards as applicable
   - SGML and other compound document standards
   - ANSI RS-232C for serial communications
   - TCP/IP support for remote network sessions
   - "Glass teletype" and VT-100 for asynchronous terminal interface control
   - ISO/OSI Open System Interconnect protocol suite
   - SMTP or X.400 for electronic mail services

   Compliance with network standards is particularly important in light of TRLN's commitment to collaborative collection development.

2. *Well supported hardware platform:* The hardware platforms required by products are well represented and supported by the TRLN university community. This means that the university communities have such significant investments in the selected platforms that the TRLN libraries will benefit from purchase and maintenance discounts, site licenses, special vendor arrangements, and communications infrastructure support. In addition, the hardware supplier will have a strong commitment to library applications and to the educational and library market.

3. *Financially secure, stable vendor:* The selected vendor is stable, with sufficient installed base, financial backing or assets, and demonstrated organization staying power.

4. *Uses modern software engineering techniques:* Vendors that use "state of the art" software engineering techniques to construct and maintain their products will be considered better prepared for support and development than vendors whose products represent or require older, less flexible, more expensive techniques. Few or no operational commercial products show thorough-going use of modern engineering techniques, but ongoing development of some products employs such techniques to varying degrees from vendor to vendor. Modern engineering techniques for large-scale software development and maintenance include:

   - Modular construction: Application system is organized as discrete modules well isolated from other system components. The application's interface to hardware isolates machine-dependent interactions to replaceable modules, and database architecture is as removed as possible (given optimization constraints) from hardware and operating system considerations.

- Prototyping: Applications development relies heavily on CASE and I-CASE tools in a structured environment that employs rapid prototyping techniques as much as possible when defining and implementing functional specifications and requirements.

- Quality control: Separate quality control systems independent of development systems that test and evaluate product functionality and reliability.

5. *Provide integrated access to information:* Integration of data has come to mean modal access to data organized and presented as logically coherent entities to users. For instance, users can see comprehensive bibliographic data on items in library collections while using the catalog section of an OPAC ("catalog mode"), comprehensive information on journal articles while using the external database section of the OPAC ("external database mode"), and comprehensive information on community activities while using the bulletin board section of the OPAC ("bulletin board mode"). The data for each section need not reside in a single database, on a single machine, or in a single product. In general commercial systems access the collections of different libraries on the same product by a modal switch to their databases; the integrated union view of different catalogs provided by BIS is not available commercially.

6. *Authority control:* Different products provide different degrees of control over catalog entry points. The strongest and most flexible control possible over all entry points is desirable. Good authority control will provide a suite of tools for maintaining consistency and integrity of catalog entry points, such as global change and replace for any entry point, automatic notification of consistency or integrity violations from incoming records or edits, and variant form dictionaries or thesauri to map non-standard to authoritative forms.

7. *Use of multiple class number schemes:* It is not uncommon for libraries to use more than one classification scheme for their collections, for instance Dewey and LC. Commercial systems support multiple classification schemes in different ways, some more desirable than others. The BIS approach of interfiling all call numbers is the least acceptable alternative.

8. *Multiple input sources for records:* Commercial products generally support three minimally required input streams for record creation: tape load from different vendors, where the software is equipped to deal with small idiosyncracies in vendor data formats; direct record transfer from OCLC, from either a screen image or a MARC record transmitted to the system; and local creation of full MARC records. TRLN will prefer systems having the greatest flexibility in handling different record formats. TRLN will examine systems particularly respecting their ability to load records from the broad variety of existing bibliographic managements system already in use by TRLN libraries (e.g., INNOVACQ, BIS, microfiche systems, etc.)

9. *Real-time editing of changes:* Commercial products reflect changes to existing records in two ways: immediately, by applying edits as they are made; or by holding changes in special files until stand-alone programs are run to make the changes in the production database. TRLN will prefer products that reflect changes to the production database as soon as possible after the changes are made.

10. *Comprehensive searching capabilities:* Basic indexing and searching features of commercial systems include author, title, publisher, subject headings, call number, and control number searches; keyword indexes for library-specified fields; and, in some systems, proximity string operators, phrase searching, author/title search, and other more sophisticated searching tools.

11. *User-tuned interface:* Existing products offer varying degrees of user control over the appearance and capabilities of the system interface. All products offer strong parameter-driven control over the text of most screen messages and help screens. A smaller number of products give libraries

control over screen layout and design. No commercial system permits changes to command parsers, screen or window sequencing, or searching algorithms beyond setting rudimentary system-wide parameters. TRLN will prefer products that provide the most local control over interfaces with the least intervention or action by the vendor.

12. *Advanced record validation and editing system:* The BIS software provides edit validation and management facilities that rank among the most advanced in the field. TRLN will prefer products that provide the largest subset of these facilities, particularly security measures and control over when an edited record is released for application to the database.

Future OPAC capabilities

The feature sets of current state-of-the-art library systems do not include crucial functionality that TRLN libraries can project as technically and financially reasonable, and likely to be required by their chief constituencies, by the mid to late 1990s. Furthermore, the scope and rate of change shown by information systems technologies in the past is unlikely to abate, so that capabilities unenvisioned now or deemed unrealistic will become standard requirements for future systems. Commercial products appropriate for research libraries will accommodate future OPAC capabilities and requirements by demonstrating systems architecture and development planning along the following lines.

1. *Extendable system architecture:* The product architecture permits or will permit integration of locally developed modules for specialized tasks, particularly modules for connectivity or local data capabilities. Appropriate products will show modular designs with well-documented global environment requirements and interface parameters values. TRLN will seek vendor relationships that share goals towards future functionality, using a product whose design allows local development and enhancement with local software engineering expertise.

2. *Interface flexibility:* The product architecture distinguishes interface from search engine sufficiently for local extensions or development of interfaces to the catalog. Ideally, the product will permit customized interface design beyond that offered by most existing products. The product will have development tools and training to manipulate the interface as required.

3. *Precise retrieval of data in terms of its relevance to a user-defined need:* The OPAC architecture is open to exploring or implementing new searching techniques other than Boolean sets for managing retrieval, such as transferable retrieval sets and relevance weighing and vector retrieval. These capabilities would be added to state-of-the-art query functions available in commercial systems for constructing retrieval sets based on title, author, keyword, etc.

4. *User-defined arrangements of retrieval sets:* An increasingly difficult problem with centralized library information systems is the size of retrieval sets: as the scope of library information systems expands, retrieval sets grow to intimidating proportions. The OPAC feature set provides or will provide flexible, user-defined ways to segment or subset large retrieval sets, for example viewing only those portions of a retrieval set available locally or only those items within specified publication date ranges.

5. *Classification access for subject browsing:* Current products provide for limited use of classification schedules for subject retrieval. Research points to improvements in retrieval through expanded use of classification searching, particularly for browsing collections. Classification searching will form the basis for a "virtual stacks" system. Virtual stacks will permit users to browse through shelf ranges, pick items from shelves and "open" them to scan the title and tables of contents, and move through the shelves from subject area to subject area regardless of the location of items in the "real" library.

6. *Flexibility in search engine and database content:* Library information systems will become a major component of university-wide information systems. To do so, the architecture of the system must provide a rich set of access and manipulation tools for enhanced bibliographic data, such as the full text of journal articles, tables of contents, and graphical images. In addition, the system architecture must provide for integrating different record structures and sources, for instance indexing records, electronic journals, electronic documents (compound documents), and other non-bibliographic databases.

7. *Integrated support for access by and to other computers:* The product architecture must provide for standards-compliant communications with other computers. The product should look to such capabilities as compound document transfer, subset transfer, transaction exchange (for interlibrary loan, automatic exchange of bibliographic records, circulation transactions, accounting data related to acquisitions, etc.), and machine-driven sessions with client desktop computers. The product should also look to support of gateway functions to data on other computers through standards-compliant techniques, for instance to locally developed databases on other computers, CD-ROM databases, and the like. Support for standard windowing techniques, particularly X, and low-end terminals (VT-100) is important. This functionality encompasses data transfer, but not data analysis; data is transferred to user computers for refinement and analysis.

8. *Modular construction:* The product architecture allows for sizing from small to large implementations in a modular fashion. Modular architecture also applies to adding other databases or other libraries in a multi-library system.

9. *Standardized, user-manipulated reporting tools:* Database design should be open to the use of general end-user database tools such as SQL and other report generators.

10. *Advanced tutorial and help subsystems:* Product architecture ideally supports locally-constructed subsystems that provide complete tutorial instruction on the use of the OPAC, with access from the subsystem to the OPAC for conducting tutorial searches, realistic retrievals, and the like. Tutorial subsystems provide complete instruction that would otherwise require a librarian. Librarians likewise control the content of succinct online help for reminders and guidelines in using software facilities.

TRLN recognizes that this description of current and future OPAC capabilities ignores important details and cannot serve as a reference guideline for evaluating system functionality. Nevertheless, it captures wide-spread professional consensus concerning the basic requirements for next-generation OPAC systems in research libraries. It should serve as the first-line assessment model to determine whether candidate systems should receive further evaluation.

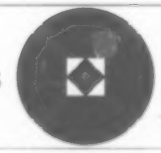
Conclusion

This document offers a different perspective to systems acquisitions than that in general use by staff at TRLN institutions. Instead of evaluating details of functionality and performance, TRLN has decided to emphasize the strategic nature of systems acquisitions. Consequently TRLN has, for the moment, passed by specifying checklists of feature sets, guidelines for acquisitions, and other materials normally amassed prior to issuing an RFP. Instead, this document is intended to serve as the principal guideline for assessing commercial products with an eye to their strategic value and their suitability not only to bringing about TRLN's vision of future library systems, but to developing, in cooperation with hardware and software vendors, a new and expanded vision of library information systems and their role in academic information exchange. Products will be regarded more favorably as they

provide greater flexibility for local development, openness to connectivity with other computing communities, and particularly as their vendors are open to establishing a mutually beneficial relationship for development and refinement of systems.

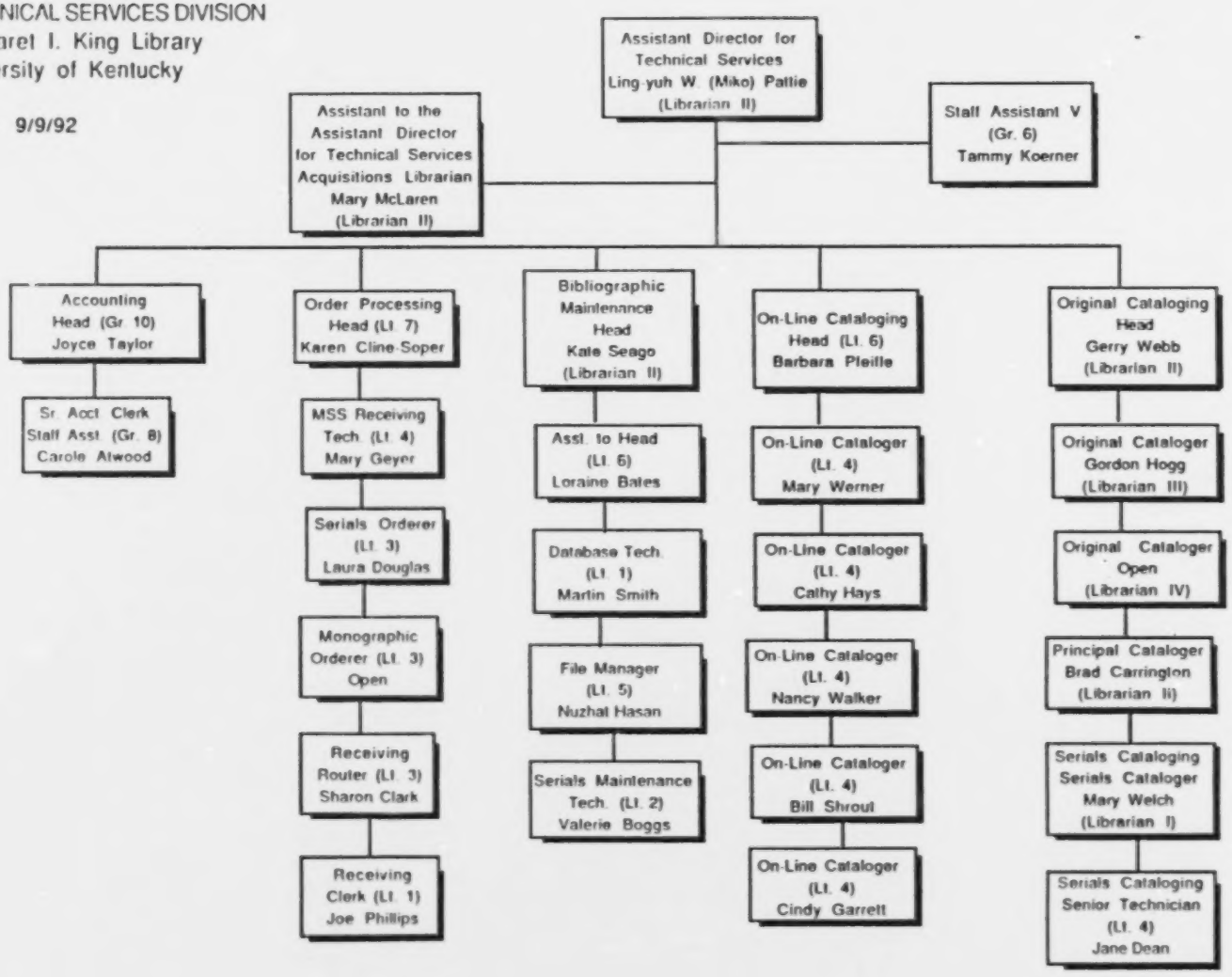
SYSTEMS AND PROCEDURES EXCHANGE CENTER

ORGANIZATION CHARTS & WORKFLOW DOCUMENTS

ASSOCIATION OF RESEARCH LIBRARIES  OFFICE OF MANAGEMENT SERVICES

TECHNICAL SERVICES DIVISION
Margaret I. King Library
University of Kentucky

Date: 9/9/92



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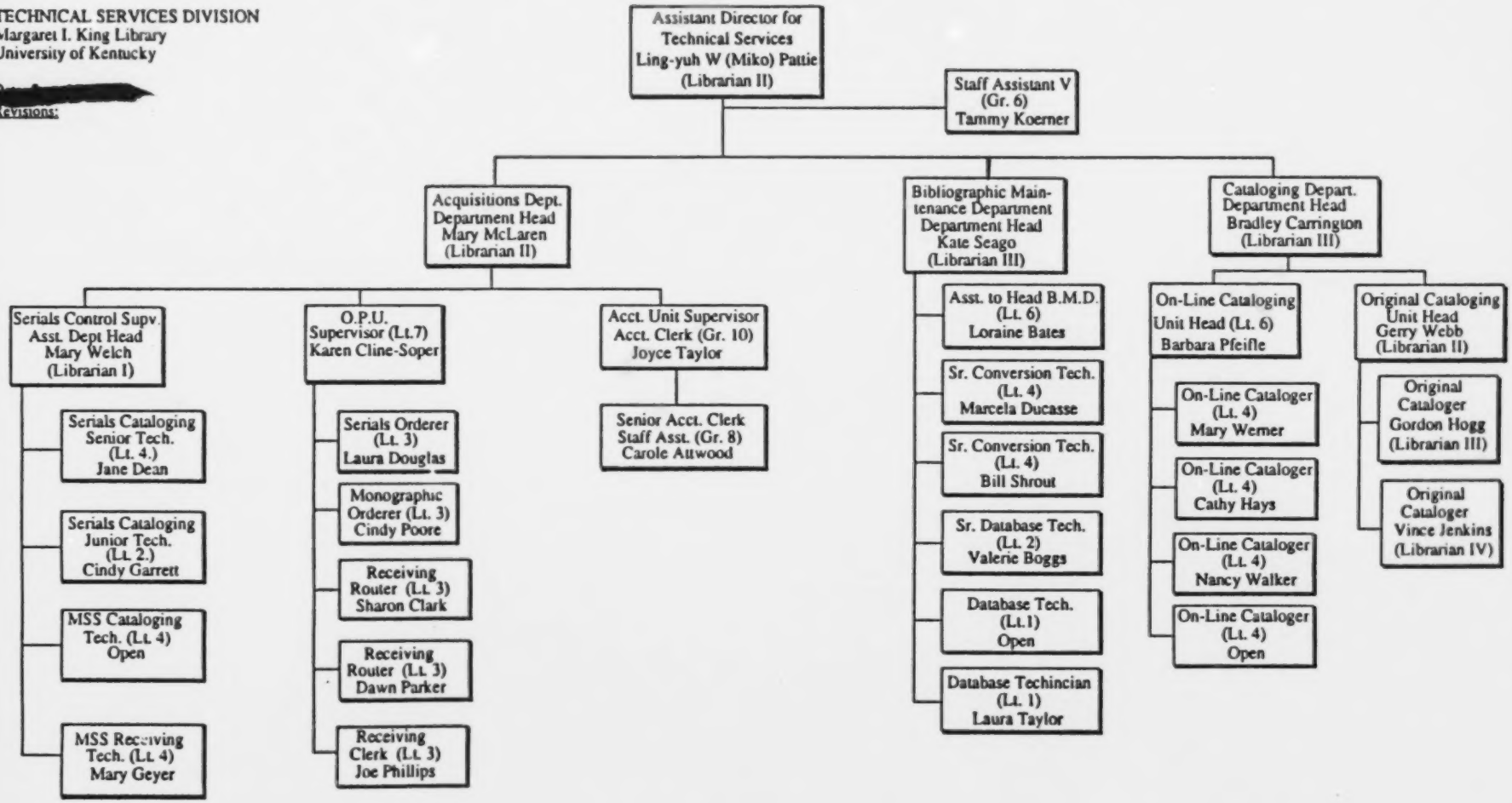
Revisions:


Assistant Director for Technical Services Ling-yuh W (Miko) Pattie (Librarian II)
Staff Assistant V (Gr. 6) Tammy Koerner
Acquisitions Dept. Department Head Mary McLaren (Librarian II)
Bibliographic Maintenance Department Department Head Kate Seago (Librarian III)
Cataloging Depart. Department Head Bradley Carrington (Librarian III)
Serials Control Supv. Asst. Dept Head Mary Welch (Librarian I)
O.P.U. Supervisor (Lt.7) Karen Cline-Soper
Acct. Unit Supervisor Acct. Clerk (Gr. 10) Joyce Taylor
Asst. to Head B.M.D. (Lt. 6) Loraine Bates
Sr. Conversion Tech. (Lt. 4) Marcela Ducasse
Sr. Conversion Tech. (Lt. 4) Bill Shrout
Sr. Database Tech. (Lt. 2) Valerie Boggs
Database Tech. (Lt.1) Open
Database Techincian (Lt. 1) Laura Taylor
On-Line Cataloging Unit Head (Lt. 6) Barbara Pfeifle
On-Line Cataloger (Lt. 4) Mary Werner
On-Line Cataloger (Lt. 4) Cathy Hays
On-Line Cataloger (Lt. 4) Nancy Walker
On-Line Cataloger (Lt. 4) Open
Original Cataloging Unit Head Gerry Webb (Librarian II)
Original Cataloger Gordon Hogg (Librarian III)
Original Cataloger Vince Jenkins (Librarian IV)
Serials Cataloging Senior Tech. (Lt. 4.) Jane Dean
Serials Cataloging Junior Tech. (Lt. 2.) Cindy Garrett
MSS Cataloging Tech. (Lt. 4) Open
MSS Receiving Tech. (Lt. 4) Mary Geyer
Serials Orderer (Lt. 3) Laura Douglas
Monographic Orderer (Lt. 3) Cindy Poore
Receiving Router (Lt. 3) Sharon Clark
Receiving Router (Lt. 3) Dawn Parker
Receiving Clerk (Lt. 3) Joe Phillips
Senior Acct. Clerk Staff Asst. (Gr. 8) Carole Attwood

SYSTEM MIGRATION ROADMAP:

NOTIS OPAC-- Aug. 23, 1991

*Contains records and holdings up to July 15, 1991

*No item status yet (use LS/2000 for this)

NOTIS Cataloging-- Dec. 1991

*Starts online downloading from OCLC.

*Loads gap tapes.

*Becomes database of records and holding.

*No item status yet (use LS/2000 for this).

NOTIS Circulation-- Feb. 1992

*Starts online circulation on NOTIS.

*Item status available in OPAC.

*Becomes a complete system for cataloged items.

*Farewell to LS/2000.

NOTIS Acquisitions-- July 1992

*Starts online acquisitions.

*Order records available in OPAC.

*Good riddance to ACQ 350 (Whew!)

NOTIS Serials-- July 1992

*Starts online serials check-in.

*Current serial issues available in OPAC.

BIBLIOGRAPHIC POLICIES AND PROCEDURES ADVISORY GROUP

COMMITTEE REPORT

1991-1992

With the library system's part of the implementation of the NOTIS cataloging and authorities module completed, the Bibliographic Policies and Procedures Advisory Group resumed its work in October. The group began the year by offering additional training sessions for staff who were unable to attend those offered by the NOTIS Bibliographic and Authority Control Implementation Committee in August or September. A few modifications were made to these sessions before they were presented again. The two originally separate sessions on the introduction to staff mode and searching in staff mode were combined into one session, while the bibliographic and authority control functions sessions remained separate. At BPPAG's request, the NOTIS OPAC Implementation Committee offered a session on OPAC searching. The four two-hour sessions were held during the first two weeks of November in the Microcomputer Lab of King Library.

The BPPAG revised several of the LS/2000 Bibliographic Bulletins to reflect the operation of the NOTIS system. New proposals were also developed and written. In preparing some of the proposals, the group collaborated with the Circulation Policies and Procedures Advisory Group, the Collection Development Unit of King Library, and the NOTIS Acquisitions and Serials Implementation Committee. The following potential NOTIS bulletins were discussed and approved by the group. These have been forwarded to the System Administrators Group for review.

Accession Number and Printing Date for Single Volume Monographs
Call Numbers for Non-Book Materials
Copy Numbers in Copy Statements of Copy Holdings Records
MHLD Records for Versions 5.0-5.1 (Includes the caption dictionary)
Minimal-Level Cataloging
Provisional Records
Serial Titles in Multiple Physical Forms
Withdrawals, Lost/Missing, and Deletions

When all cataloging centers began using the cataloging and authorities module in February, the group distributed two notices: Summary of BPPAG Proposals and Decisions and Decentralized Authority Control: Temporary Guidelines for New Cataloging. These were designed to inform the library staff of

the pending proposals and decisions that had been made by the group to date, but could not be distributed since they had not been approved by the System Administrators Group or the Administrative Committee.

A proposal for notes indicating the non-circulation of damaged material was submitted to the group by Judy Sackett, Preservation Librarian. Another proposal for notes providing donor/honoree information was submitted by Miko Pattie. These proposals were approved by the group and will be included in the proposal on local notes which has been discussed, but not yet finalized.

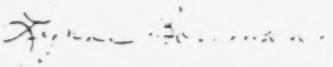
The group defined five authorization levels for technical services processing in NOTIS. Each level builds on the previous one. The levels are item work, copy/MHLD work, bibliographic work, authority work, and supervisor. Tari Keller created templates of these levels making it easier to create an individual's security profile.

During the month of May, the group experienced some membership changes. Brad Carrington and Dan Hodge resigned, while Gerry Webb and Barbara Pfeifle joined the group. Mary Vass replaced Dan as the branch representative.

The members of this year's group were Teresa Burgett, Brad Carrington, Gwen Curtis, Dan Hodge, Vince Jenkins, Tari Keller, Lillian Mesner, Miko Pattie, Barbara Pfeifle, Kate Seago, Ebba Jo Sexton, Mary Vass, Gerry Webb, Mary Welch, and Lynne Bowman, Chair.

Copies of the bulletins which were forwarded to the System Administrators Group this year are attached.

Respectfully submitted,



Lynne Bowman, Chair

NOTIS BIBLIOGRAPHIC AND AUTHORITY CONTROL IMPLEMENTATION

COMMITTEE REPORT

1991-1992

The NOTIS Bibliographic and Authority Control Implementation Committee, NOTISBIB, continued its work on the implementation of the cataloging and authorities module of the NOTIS Library Management System. The committee members developed and offered training sessions to introduce the library staff to the cataloging and authorities module as well as staff mode searching. The sessions covered an introduction to staff mode, searching in staff mode, bibliographic functions, and authority control functions. In addition, two wrap-up sessions were offered allowing staff to ask questions and share their experiences with the new system. Nineteen two-hour sessions were held at a variety times from August 26-September 20 in the Microcomputer Lab of King Library. Each session was limited to thirty-two people. All sessions were well attended.

The training sessions completed the library system's part of the implementation of the NOTIS cataloging and authorities module. Since the members of NOTISBIB and the Bibliographic Policies and Procedures Advisory Group were essentially the same, the committee members decided that BPPAG could handle any additional implementation issues that might arise before the cataloging and authorities module actually becomes operational. The module was originally scheduled to be operational in September, but was postponed.

The members of the committee were Bernie Baldini, Lew Bowling, Brad Carrington, Gwen Curtis, Tari Keller, Lillian Mesner, Mary Molinaro, Miko Pattie, Ebba Jo Sexton, and Mary Welsh. Lynne Bowman and Kate Seago co-chaired the committee.

Respectfully submitted,

Lynne Bowman
Kate Seago
Co-chairs

Technical Services Bibliographic Group
Sept. 13, 1991

I. Members:

Miko Pattie, Chair

Acquisition--	Mary McLaren	Cataloging--	Brad Carrington
	Karen Cline-Soper		Gerry Webb
	Joyce Taylor		Vince Jenkins
	Mary Welch		Gordon Hogg
	Jane Dean		Barbara Pfeifle

BMD-- Kate Seago, Bill Shrout, Loraine Bates

II. Charge:

To analyze present workflow and to establish new workflow for the implementation of NOTIS cataloging, acquisitions and Serials Systems.

TSBG will be an in-house working group under the umbrella groups such as, NOTIS Bib and NOTIS Acquisitions/Serials.

III. Work Groups:

TSBG establishes the following work groups to deal with each module's implementation:

1. Cataloging-- 11 members
   Brad, Kate (Co-Chairs)
   Gerry, Vince, Gordon, Barbara, Bill, Loraine, Mary W, Jane, and Miko.
2. Acquisitions--5 members
   Mary M. (Chair)
   Karen, Joyce, Mary W. and Miko

3. Serials--5 members
   Mary W. (Chair)
   Jane, Brad, Steve and Miko

TSBG will meet once a month to act as an umbrella group and to deal with issues crossing these three modules.

IV. Documentation:

1. Online NOTIS documentation:
   Tari will set up the NOTIS documentation file in view so we can access it via UKCC. Details on this will be made available later.

2. NOTIS Implementation Guide:
   This guide provides a road map for implementation, including decisions to be made and tasks to be done in implementing each module. Miko will make copies for members of the work groups to serve as a jumping point.

3. NOTIS User's Guide:
   This guide serves as a reference manual for NOTIS' 4 modules-- OPAC, circulation, cataloging/authorities, and Acquisitions/Serials. Miko will make sure there are copies on the bookshelf next to the terminal area for staff reference.

V. Migration Mechanics:

1. OCLC ports remain constant- 10 ports.

2. LS/2000 ports-- After the implementation of cataloging module, we will have 2 downloading ports and 1 searching port available for LS/2000. BMD staff will download all saved records form processing units on Saturdays to update LS/2000 database.

   *Mary Welch inquired about added volumes from her unit-- The decision is to let circulation points create mini records for these on LS/2000.

   *Karen asked about the completeness of the NOTIS database-- As soon as the cutoff date is determined, Tari will tape off the gap tapes and load them into NOTIS. So, NOTIS will be the database to search for complete holdings. The status will only be on LS/2000 until the NOTIS circulation module is up in Jan. '92.

3. NOTIS ports-- We will have 4 downloading ports that are connected to GTO (Generic Transfer and Overlay) machine. All other LS/2000 ports will be switched over to NOTIS. We are hoping some can be backed out of NOTIS so we could access BITNET and LS/2000's 3 dial-up ports.

VI. NOTIS vs. LS/2000

1. Access-- LS/2000 has its own set of hard-wired ports on UKNET to access the Data General mini. NOTIS uses UKCCB route to access the supercomputer IBM 3090 where our databases reside. This is why we have to learn the basics of navigating through the gateway to use NOTIS.

2. Record Structure-- LS/2000 has only 2 types of records for us- bibliographic and item records. NOTIS has bibliographic, copy holdings, MARC holding, item and authority records. In addition, we will have fund, order, vendor and invoice records for acquisitions module.

3. Provisional Records-- LS/2000 has circulation mini records which are fully indexed. NOTIS has unlinked item records for which there are not bib records and are only searchable through the call number, Item ID or any course reserve information present in the record.

VII. Next Meeting

TSBG will meet on Oct. 21, Monday, at 10:00 A.M. in the staff lounge. The first cataloging/Authorities work group meeting will be on Sept. 25, Wednesday, at 10:00 A.M. in the staff lounge.

Technical Services Bib Group
CATALOGING/AUTHORITIES WORK GROUP

SUBCOMMITTEE ON AUTHORITY WORKFLOWS
Kate, Brad, Gerry, Barb
October 15, 1991

ASSUMPTION: Procedures for Name, Topical and Series headings are applied consistently in Cataloging, BMD and Acquisitions Departments.

PROCEDURES:

1. NAME HEADING:
   * If there is an LC authority record, no action is taken beyond verification.
   * If there is NO LC authority record, original cataloger creates a name authority on a workform.

2. TOPICAL HEADING:
   * There must always be an LC authority record for at least the main heading.

3. SERIES HEADING:
   * Check NAF to verify form of entry. (Tracing decision comes from the CSF.)
   * Check CSF for tracing decision
     a. If no card in CSF use LC authority record to create CSF card. Follow LC tracing decision.
     b. If no record in NAF and no CSF card, the piece goes to an original cataloger.
     c. Original catalogers can always change a tracing decision; however, local decisions are usually maintained.

SUGGESTED SCENARIOS:

Acquisitions module Not in place

FRONT END VERIFICATION
1. Leave existing procedures in place.
2. Add authority records for new cataloging.

Workflow:
a. Verify as usual in LC authority file. If no authority is found, check file in NOTIS.
b. Original catalogers create new authority records in NOTIS for unverifiable headings.
c. BMD would be responsible for getting LC authority records into NOTIS using the new and dropped heading list to identify headings (topical, name or series) to be added.

NOTE: This subcommittee STRONGLY recommends loading LC authority taped into NOTIS and purchasing a standing order for update tapes.

BACK END VERIFICATION
1. Verify only series tracing decisions and 090 call numbers.
2. Put time and effort spent verifying headings in PRISM toward verifying headings in NOTIS.

Workflow:
a. 050 copy -- verify series only.
b. 090 copy -- verify call number and series statements, otherwise, produce and export the record.
c. Original cataloging required -- verify headings up front (they would appear on the new and dropped headings list anyway)

CHANGE: Original catalogers would not work on member copy at all to establish headings; BMD would consult original catalogers based on NOTIS reports.

MIDDLE GROUND

Divide workflow based on type of heading:

1. Accept full level (b, l, L) cataloging up front for **topical headings.**
2. Verify names and series headings
   If verifiable, XPO
   If not, send to original catalogers

NOTE: Existing distribution of inventory based on format is unchanged in these scenarios. Original catalogers will continue to process microfilms, sound recordings, scores, etc.

WITH ACQUISITIONS MODULE IN PLACE

OPU:

1. Searches for copy based on order information
2. Exports PRISM record to NOTIS or created provisional record in NOTIS
3. Places order
4. Receives material
5. Prints NOTIS worksheet and routes to online

ONLINE:

1. Searches for better copy
2. Verifies all headings
   * Check LC authority records in PRISM
   * Check authority records in NOTIS

   In all cases, when an LC authority record exists, indicate with "LC" or "OK" on the printout or worksheet.

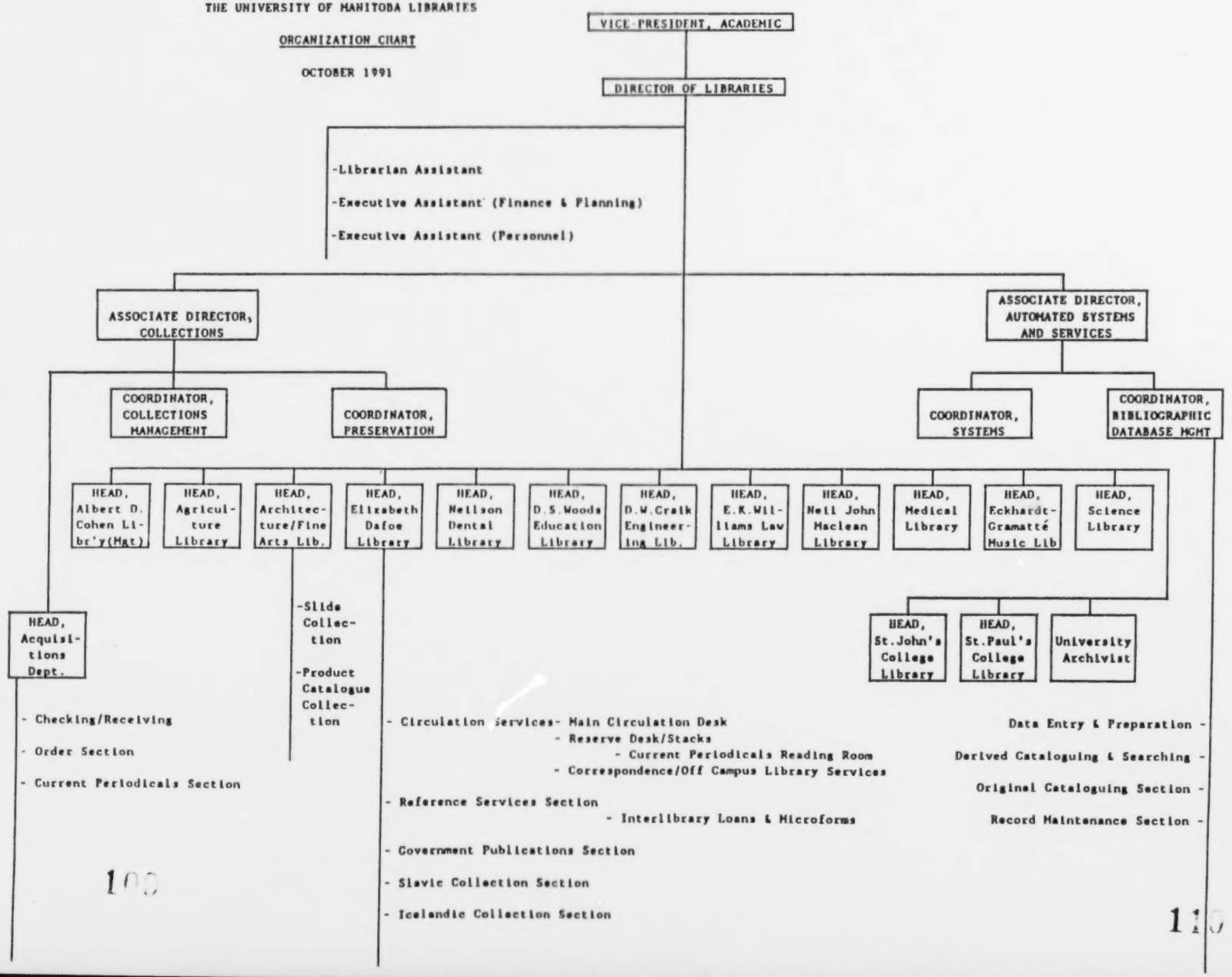
   If unable to verify all headings, route to original cataloger, who adds authority record in NOTIS.

3. Give printout to BMD when cataloging is completed. BMD will search for authority records in NOTIS and export or claim authority records as needed.

THE UNIVERSITY OF MANITOBA LIBRARIES

ORGANIZATION CHART

OCTOBER 1991

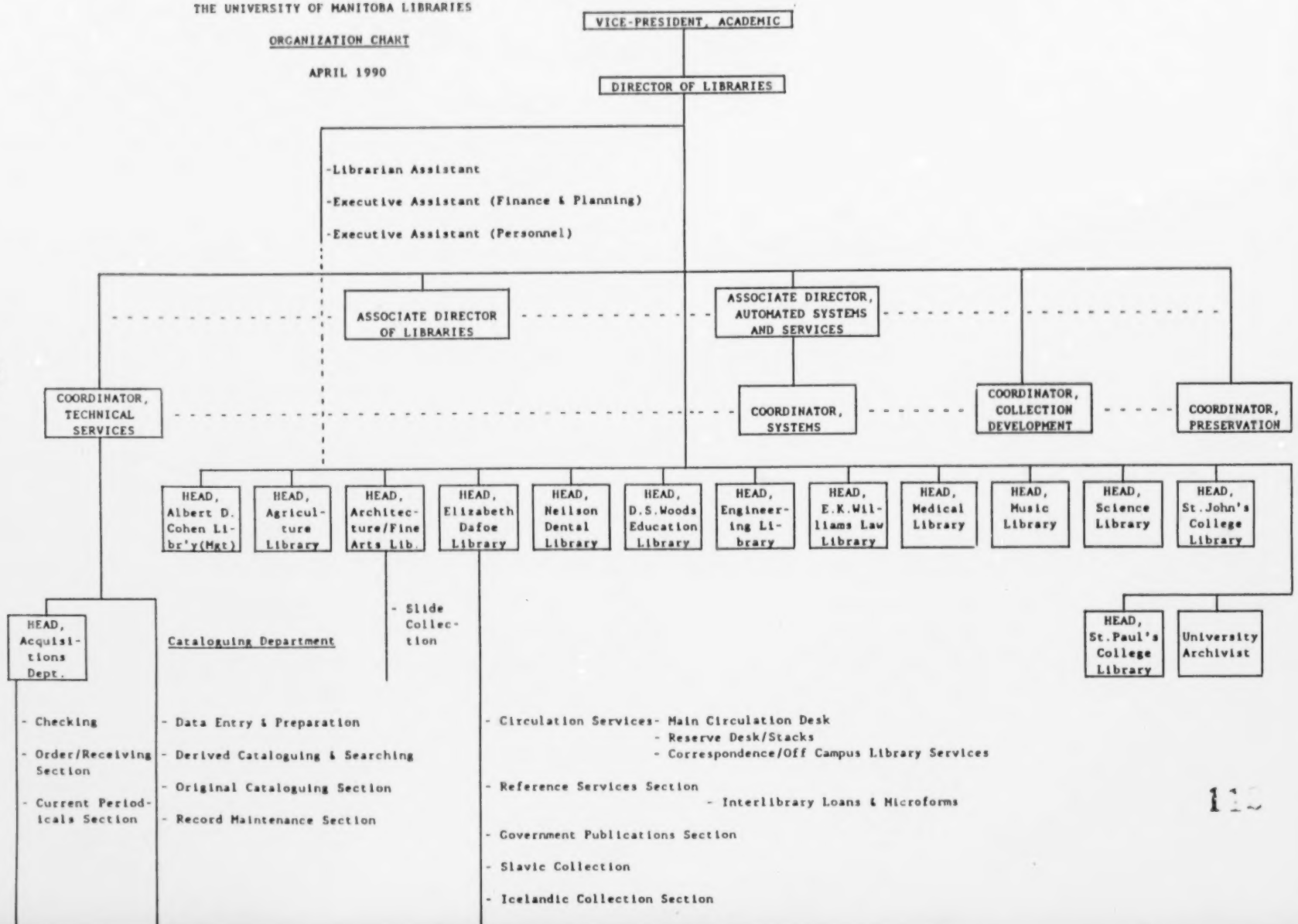


University of Manitoba

THE UNIVERSITY OF MANITOBA LIBRARIES

ORGANIZATION CHART

APRIL 1990



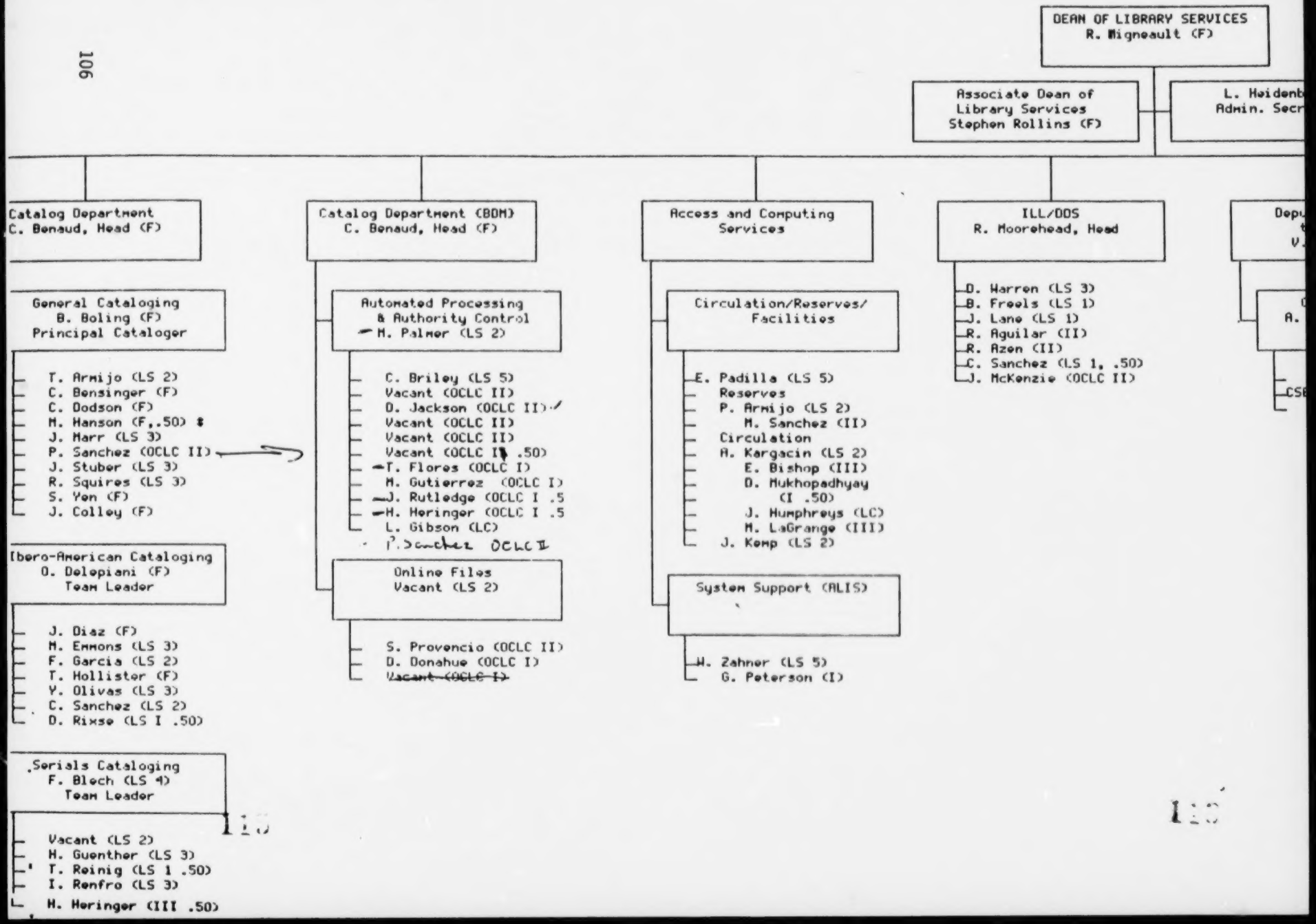
New organization

Technical Services Departments
March 19, 1992

Acquisitions Dept.	Serials Dept.	Operations Dept.	Catalog Dept.
	Receiving Team (existing)		General Team (existing)
	Paying Team (existing)		Ibero Team (existing)
	Bindery (existing)		Serials Team (existing)
			Authority Control Team (existing)
			Database Management Team (formerly Automated Processing and Catalog Maintenance)

University of New Mexico

old organization



New workflow (proposed)

Procedures Overview
April 14, 1992

Below is a rough draft of groups of procedures that we have talked about thus far and assigned to the various teams.

Acquisitions (primarily procedures following receipt of item)

**Download full MARC record from OCLC or key brief bib. record at time of order with bcode1=t, all order notes go in order record and not in bib. record.

**After item is on review shelves: update fund, location, and selector name for approval books and location for other titles if selector made changes; print INNOPAC bib. and order records (workform) to send with book.

**Searching of gift materials; if item is on order, attempt to cancel order; send duplicates back to Gifts.

**Sort out Fine Arts location materials and adds. Send remaining materials to Cataloging.

Receiving

**When piece is received, rdate entered, book is stripped, print INNOPAC workform. Send to review shelves.

**Check in all serials/periodicals pieces, print labels, send to routing shelves.

**Serials added volumes: check in serial, create item record, print spine label from item record, glue label, and send to routing shelves.

**Superseded volumes: Process according to check-in record instructions. Change the item record location and bib. record location if necessary, relabel the piece(s). Delete the item record and correct the check-in record for supersedes not remaining in UNMGL collection ("withdrawn").

**LBO (Latin American blanket orders) processing: Key brief bib. and order records.

**Analytics and class seps.: Key brief bib. and order record; send to be cataloged.

**Gift serials: Input issues received in LIB HAS field in the bib. record; send to Serials Cataloging if a new title; send large runs to Bindery.

**Bound periodicals: Change status and collapse check-in boxes; create item record.

Monographic Cataloging--(050, 09x and original cataloging)

**Sort materials to Ibero team, Serials team, and 050 and 090 shelves.

**Catalog 050s (with series and/or literature call no.), 09x (including 09x maps) and original titles on OCLC.

**Check INNOPAC authority file and card authority file for names and series; if record exists only in card form, print OCLC authority record, make necessary changes to it; check OCLC authority file if no local records exist. If no OCLC authority record exists, complete INNOPAC authority record workform and submit to authority control team.

**Check INNOPAC authority file, OCLC authority file, LCSH, and LC cataloging manual for subjects. Unprecedented headings reports for new subject headings entering the INNOPAC database will be distributed to catalogers for review and detection of errors.

**Edit/produce on OCLC, put edited record in save file, write save file # on workform.

**Retrospective conversion of remaining LC shelflist.

Serials cataloging

**Catalog new serials titles and title changes on OCLC

**check INNOPAC authority file and card authority file for names and series; if record exists only in card form, print OCLC authority record, make necessary changes to it; check OCLC authority file if no local records exist. If no OCLC authority record exists, complete INNOPAC authority record workform and submit to authority control team.

**Download OCLC edited/produced record to INNOPAC, create check-in record, create item record if piece arrives bound, create holdings statements in bib. and/or check-in record

**Process serial added locations

**Recatalog monographs that become serials

Authority control (4 staff positions + 1 student)

Team leader (LS IV):

**Establish guidelines in consultation with Principal Cataloger for the retention/deletion of cross-references in authority records, primarily numerous foreign language entries.

**Schedule and perform global changes to headings based on instructions from Principal Cataloger and as identified through Cataloging Service Bulletins

**Sort all headings reports (send appropriate to LAW and NMT based on user initials)

**Process first time use reports for names, invalid headings, blind references, and duplicate authority record reports, make corrections to associated bib. records

**Revise work of team members

LS I: (3 positions)
**Convert name and series card file records as headings are processed
**Input new authority records from workforms created by catalogers
**Download authority records from OCLC if local treatment is different than LC and if not on INNOPAC
**Search public catalog and produce necessary cross-references for INNOPAC and public catalog
**Process first time use reports for names, invalid headings, blind references, and duplicate authority record reports, make corrections to associated bib. records
**Make corrections to subject headings based on unprecedented headings reports (changes generated by catalogers)

Database management (9 staff positions + 3 students)
(all procedures listed exclude the processing of materials by branch cataloging teams: Fine Arts, Special Collections, Government Publications)

Team leader (LS IV):
**Process duplicate utility and barcode report; sort approriate errors to ABPL, LAW, and NMT.
**Resolve all duplicate shelflist card problems
**Monitor and sort materials on Action Review shelves.
**Receive and route reinstates to action review; catalog those to be reinstated, withdraw pieces not reinstated
**Process all record corrections (duplicate call nos., problem call no. or location)
**Revise work of team members

LS I: (5 positions)
**Catalog 050 books with no series or literature call no.; produce on OCLC using Microenhancer; create item records and print spine labels.
**Download bib. records from OCLC and create item records for all 050s, 09xs and original cataloging. Input cat date in order records.
**Proof call # and location on book against workform from cataloger; set aside for shelflist correction any with errors
**Label all materials with OCR and spine labels.
**Process unique treatment materials (house in acid-free pam folders or use acid-free strips)
**Process added copies, locations, volumes (except serials)
**Process monographic transfers
**Perform retrocon on titles associated with adds and transfers
**Process withdrawn copies, volumes, and titles
**Monographs to be bound (based on selector decision recorded on action flag): Create item record with "TO BINDERY" status; print spine label and put on first page of book.
**Photocopies of originals (based on selector decision): Add note in bib. record that library has photocopy of original; add note to item record.

LTA I: (3 positions)

**Glue all spine labels and property stamp materials.
**Sort shelflist cards and route to branches
**File shelflist cards
**Complete shelflist and public catalog corrections initiated by branch cataloging teams
**When monographs return from bindery, those bound in mylar have status changed and spine label printed and glued on piece.
**Input tables of contents (from photocopies made at the time of cataloging) for titles identified for enhanced records

Bindery

**Periodicals: Binding slips are generated from INNOPAC; bound volumes returned from Binder go to Receiving.
**Too brittle to bind: Based on selector decision (bindery review), box or photocopy piece; send to Database Management if a photocopy. Print new spine label for box.
**When items return from Binder: send mylar bound to Database Management, bound periodicals to Receiving; change status of Class A and Economy to appropriate code (Check shelves, Lib use only)
**Pam binding, boxes: Selector determines binding (through Bindery Review shelves); piece is bound or housed in box; label is printed from item record and pam folder or box is labeled.
**Missing pages, mending: Item remains on bindery review shelves until processed; item record has status of Bind review.
**Serials needing binding: Use the new periodical binding decision procedure to ask selectors which titles should be bound. Bindery staff will decide which serials will be routed to selectors for a bindery decision (based on flimsiness of pieces and existing binding).

Gifts

**Materials received and sorted for selector review; once selected, sent to Gifts searching shelves in Acquisitions.
**Decision cards dated older than 5 years will be pulled and selector asked to review pieces received. New decision record will be added to INNOPAC, not card file. Gifts' internal decision file will be retained in card format.
**Distribution of materials based on selector's instructions, sites receiving materials, etc.
**Process exchange materials.

Changes to current technical services procedures

Eliminate updating of LIBROS (Carlyle) after May 1992

Eliminate updating of DataPhase after August 1992

No more OCLC weekly tapes received after May (?) 1992; all cataloging records downloaded directly to INNOPAC.

Full MARC records will be accessible for materials on order when available on OCLC.

Marking becomes part of the work routine of the Database Management team, not a separate unit.

Automated Processing (050 cataloging team) eliminated.

Some catalogers would have 050 and CIP as the main part of their job (LS I, LS II, some LS IIIs). This serves two purposes: 050s and CIPs do not become backlogged; lower level catalogers have training material for cataloging. All catalogers would also produce 050s.

Catalogers will no longer do 949s, reducing the amount of time spent on each book and the number of errors made in the item information; some of this saved time will be spent on additional authority work.

Authority file will be converted to online beginning with all new authority records and ongoing as each name/series is encountered in cataloging.

Retrospective conversion of remaining 170,000 LC titles to begin as ongoing General Team cataloging procedures.

Subject heading errors will be processed by catalogers and corrections made to the database on an ongoing basis.

Titles to have enhanced records will be identified and upgraded in INNOPAC.

Check-in records will be set up for all current government publication serials, making this information more accessible to patrons and streamlining Gov. Pubs. procedures.

Full MARC records (when available on OCLC) will be added to INNOPAC for all purchased/gift maps received. Brief bib. records will remain for those needing original cataloging. Map records will also be added through MARCIVE tape load and will show a MAGIC location.

All monographs sent to Bindery will have status on OPAC of "TO BINDERY" that will be changed when piece returns from Bindery.

Decision card file will be phased out and replaced by decision records on INNOPAC. All decision cards dated older than 5 years will be placed on Action review/Gifts shelves for new selector decision.

Unique treatment materials needing acid-free strips will all be processed by the Database Management team, reducing the number of individuals to be trained on this procedure.

Retrospective conversion and record reconciliation will take place with the processing of all adds and transfers.

Possibly eliminate proofing shelflist cards (errors will be identified when the record is downloaded and the piece is labeled).

Every cataloger will cross-train with the Database Management team in order to learn INNOPAC thoroughly.

MAKING THE TRANSITION FROM ONE AUTOMATED SYSTEM TO ANOTHER

OCULA - February 20 / 21, 1992
Thursday, February 20, 1992, 2:00 to 4:30 pm
Wilma Bernabei, Systems Coordinator
Queen's University Library System

Queen's, more than once, has made the transition from one automated system to another. Each transition presented its own set of problems and solutions. The latest transition was the most comprehensive since "at one fell swoop" we moved from one integrated system - circulation, acquisitions, cataloguing, OPAC - to another. The situation which caused us to make the change and the way in which we accomplished it are the subject of my remarks today.

I'll give you a little background on Queen's to put my remarks in context:

> Queen's University is in Kingston, Ontario - on the shore of Lake Ontario in the heart of the Thousand Islands. It currently has a student body of about 15,000.
>
> Queen's was founded in 1842 by charter from Queen Victoria. It is now a full service university with Faculties of Arts and Science, Applied Science (Engineering), Medicine, Law, Education, Business and assorted Centre's and Institutes. About 17% of the full time student body is in graduate studies.
>
> Queen's, like all other universities in Ontario, is heavily subsidized by the Provincial Government currently to about 80% of its operating budget.
>
> The Queen's University Library System is decentralized in 19 different campus buildings but is directed by one Chief Librarian. It has 220 staff, 40 of them are professional librarians. The main Library, Douglas, houses the humanities and social sciences collections. It has 15 branches serving Fine Art, Music, Government Documents, Industrial Relations, Guided Ground Transportation, and the assorted Sciences. There are 3 Faculty Libraries - Law, Education, and Health Sciences. Douglas does most of the technical processing for its branches and most of the processing for Education. Law, Health Sciences, Documents, Industrial Relations and Guided Ground Transportation do their own technical processing. The Policy Studies and Guided Ground Transportation Libraries were not part of the system in 1988 when we moved to NOTIS.

Queen's was neither the first nor the most enthusiastic in automating its library operations. We rationalized our conservatism by saying that we were "learning from other's mistakes" before trying new ideas. We moved carefully into each new phase and tried to take advantage of our own mistakes as well as the mistakes of others. Events occurred something like this:

> Queen's and its Library System got into the automation game 22 years ago. In 1969 the Library, with the help of the Computing Centre, set up the beginnings of a machine readable shelf list and implemented a computer assisted batch circulation system. The shelf list fed the circulation system and both helped to get our collective feet wet - the Computing Centre's and the Library's.
>
> There were other automation projects in the Library such as the CODOC, government documents coding project but nothing with the impact of the circulation system. By the late 70's the batch circulation system was under severe stress but the machine readable shelf list was still chugging along and contained most of the Library's holdings. Later, that rudimentry, non-MARC shelf list provided us with our first on-line catalogue.
>
> In 1979 the Library hired a full time Systems Librarian and set about in earnest to automate where it was possible. We installed a Geac circulation system to replace the dying batch system and started non-MARC cataloguing. It was a dramatic improvement. We implemented Geac MARC cataloguing in 1983 and acquisitions in 1985. We tried desperately to implement Boolean Searching in 1985 and 1986 but by this time the Geac 8000's, try as they may, could not keep up with the load we had placed on them. We needed more than the 140 terminals that seemed, at that time, to be a Geac limit. We needed much faster transaction speed than what we were experiencing. We needed a fully integrated database to ensure timely, accurate technical services processing.

The 7 years with Geac gave the staff of the Library a solid orientation and background for the next step. The Geac had been housed in the Library, not the Computing Centre. The Systems staff became intimately knowledgeable about the internal machinations of that Library automation system. And the rest of the Library staff - demanding enhancements, analyzing bugs, bypassing failures as well as optimizing the work flow within the constraints of the computer system - learned a lot about how to work with automation. We were light years ahead of where we had been before 1980 and the experience of the intervening years helped us to formulate the new 'mountains to climb and rivers to cross'.

While the Library was encouraging its staff to milk its computer system for all it was worth, the Computing Centre was busy encouraging everyone on campus - students, faculty, and staff - to become 'computer literate'. In 1978 the decision was taken to develop real-time systems throughout the University. By 1984 there was a little bit of central computing slack, enough to allow staff who didn't have to use the computer in their daily work, to be given an amount of computer dollars to play with. The Computing Centre offered free 'how to' courses to any staff who would take them. In 1986 the Queen's Bell telephone system was replaced with a Meridian system and the campus was wired for voice and data. The communications system was linked to the central computer. Also, in 1984, staff were able to buy the student micro computers at the student price and by 1986 the University implemented a payroll deduction payment plan for micro equipment up to the amount of $2500.

Only a few Library staff took advantage of the carrots offered by either the Computer Centre or the Library but they all knew that the opportunities were there. The few who did use the computer dollars, take the free courses or buy the micros were vocal. They praised and complained, no matter, they helped pave the way for the next step.

The solutions reached in the early '80's became inadequate. New solutions had to be found:

1986 was a bad year for the Library. Its computer system could not meet the demands and so staff morale suffered. (So did that of faculty and students!) The Library undertook a review of the system, trying to involve as many individuals as was reasonable.

It was at this time, in preparation for the system review, that I was asked to join the library in the effort. I had had years of experience in managing projects including several serving the library. Some of those projects had come in on time and budget. I entered the fray with enthusiasm. My task was to keep money, time and events on track.

A Chief Librarian's Advisory Committee was established with two sub-committees - one for hardware and one for software. They were composed of senior library administrators and computing centre staff and the chair of the Senate Library Committee. The sub-committees and the Advisory Committee did not have to meet often. The real work of the review was done by Working Groups - one each for Acquisitions/Serials, Cataloguing/Authorities, Circulation, On-line Public Catalogue (OPAC), and External Databases. These Working Groups were composed of professional and non-professional staff. We tried, also to include one or two patrons in each. We were most successful getting patron interest in the OPAC Working Group but less so with the others.

Each Working Group put together a list of functional requirements for its perfect system. While they were busy making up their wish lists the Software Sub-Committee polished up a generic integrated system requirement list and sent it off to some 40 vendors. By the time the vendors were responding, the Working Groups were well into their subjects. It was obvious early on that 5 vendors might meet our needs - functional, hardware and political. We invited the 5 to demonstrate their systems at Queen's for 2 days each. We wanted the 2 days so that as many staff as possible could see each system in operation, ask questions, and even try out some commands. We invited all members of the Senate Library Committee to the demonstrations. Most demos were packed with Library staff but we made room for patrons especially for the OPAC portions. There was a great deal of staff interest in all the demos - and it was not just a chance to get away from the desk for a few hours. In fact, after the first demo, we restricted who could ask questions to those on the Working Group for the function being demonstrated. If anyone else had a question, they were to write it out and pass it to a member of the appropriate Working Group. We also restricted attendance at segments of the demos to those working with the functions being demonstrated. Demos were held in a room

seating about 25 people. In all cases demonstrators used a data screen projector. There was Standing Room Only at each OPAC segment demonstration.

After each demo the Working Groups met and matched the wishlist requirements to the demonstrated system. After all 5 demos each Group ranked the systems first on the basis of their particular function and second on the basis of the system as a whole. They used their wish list as the criteria for the specific function and their perception of patron needs as the criteria for the system as a whole. The rankings were not the same.

When the decision was finally taken to go with NOTIS, the members of the Working Groups were well aware of the good and bad points not only of how NOTIS dealt with their own function but also of the OPAC. So when the circulation staff complained that the NOTIS circulation did not meet their needs as well as Geac, they also admitted that the NOTIS OPAC was superior - all in the same breath! Cataloguing/Authorities liked what they saw. Acquisitions/Serials wasn't so sure they needed all this trauma. The OPAC group made up for any lack of enthusiasm on the part of any of the other Groups. The External Database Group was happy with the linkage potential.

By the time the contract was signed with NOTIS in November 1987 there was a good general level of understanding among the staff of what NOTIS could and could not do. Not a perfect knowledge but a reasonable one.

The decision was taken to implement NOTIS fully in its standard form. Planning the transition from Geac to NOTIS required the accumulated expertise of many people. The NOTIS staff supplied the application software knowledge and the history of other transitions and implementations. Queen's Computing Centre staff supplied the main frame computer system - CICS and MVS - knowledge and manpower. Queen's Communications Services supplied wiring and terminal connection knowledge and manpower. And the Library staff provided.....but that's a story in itself:

Sometime in the fall of 1987 we decided to spread the NOTIS implementation chores among the library staff in a fashion similar to the previous system review. We set up a NOTIS Implementation Committee similar in composition to the previous Advisory Committee. The Implementation Committee was composed of senior library staff and senior computing centre staff. (No patrons this time.) The Implementation Committee was to be a pacing, overseeing group. One to set the direction and then meet only in a crisis. It designated sub-committees in the Library and individuals in the Computing Centre to carry out the implementation.

The Library sub-committees were for Technical Services, Circulation, OPAC, and Space Planning. After one meeting of the Technical Services sub-committee it was clear that it had too much to handle and so was split in two - the traditional Acquisitions and Cataloguing. These five sub-committees did the grunt work of implementation. All sub-committee members were professional librarians (except for me) but they were not all managers. Each sub-committee was chaired by a Unit Head from Douglas Library and included representation from the Faculty Libraries. It was broad representation without, we hoped, becoming unwieldy. The plan was to implement OPAC, cataloguing and circulation during May through July, 1988 and then acquisitions in May, 1989. Authorities and Serials Checkin, which were not implemented on our Geac system, would come along in time as the dust settled.

This was a very aggressive timetable and we knew it. NOTIS advised us to take a more cautious approach but we were determined to have the new system available for patrons and staff ASAP. The determination shown by the library staff was matched by those in computing and communications. Both units were anxious to prove that they could work effectively as a team. That same team spirit is evident today.

The Cataloguing Sub-Committee had target dates assigned for the following:

1. Determine the MARC tables that would be used;

2. Assist the System's Librarian in data conversion by specifying conversion formats, analyzing converted data, spotting incorrect conversions, recommending changes to formats, and recommending approval/rejection of the conversion procedure and converted data;

3. Specify the order of data conversion;

4. Specify the procedures to be followed in the Cataloguing Units during the data conversion and cutover period Feb. through May, 1988;

5. Set up the training schedule for Cataloguing staff.

The conversion and cutover workflow was to be determined by each Cataloguing Unit manager.

The Acquisitions Sub-Committee had target dates assigned to:

1. Specify the procedures to be followed in the Acquisitions Units during the Catalogue data conversion and cutover;

2. Specify the procedures to be followed in the Acquisitions Units during the year between the cataloguing cutover and the acquisitions cutover;

3. Determine how the acquisitions tables and files - vendor, fund - would be transferred to NOTIS;

4. Specify the procedure for the cutover to NOTIS;

5. Set up the training schedule for Acquisitions staff.

In February of 1988 it became obvious that the antique Geac hardware that we were using would not make it for another year plus a bit. Our Vice-Principal would not even consider Band-Aids to patch the ailing boxes. Faced with the option of going back to a manual system, the Acquisitions Implementation Sub-Committee revised its schedule and altered its plans so that acquisitions could be implemented in May 1988 along with cataloguing and OPAC. The revision meant a little hustling but viewed in retrospect it was a very good decision. The non-professional staff in particular was glad to have the chore over and done.

The Circulation Sub-Committee had target dates assigned to:

1. Specify the location tables;

2. Specify the circulation policy tables;

3. Specify the circulation cutover procedures;

4. Set up procedures for unlinked item record creation for a course reserve photocopy collection of about 23,000 items;

5. Set up procedures for circulating items during the transition to NOTIS;

6. Determine policy and procedures for dealing with fines incurred on the old circulation system;

7. Set up the training schedule for Circulation staff.

The OPAC Sub-Committee had target dates to:

1. Specify the text on the OPAC Help screens;

2. Write and print a brochure for patrons on how to use the OPAC;

3. Create a flip-chart for the Douglas Library Lobby showing how to use the OPAC.

The Space Planning Sub-Committee was really a service to the four functional sub-committees. The Space Planning Sub-Committee had targets to:

1. Determine how to stage the installation of terminals;

2. Specify what additional furniture was required, when and where.

The Sub-committees did not work-to-rule. If the implementation required something related to a particular function, the work was delegated to the appropriate sub-committees. The work was sometimes done independently, sometimes cooperatively.

Each Sub-Committee Chair received a photocopy of the appropriate NOTIS documentation. The Chair then was responsible for getting documentation to other Sub-Committee members. Unit

Heads received photocopies of NOTIS documentation appropriate to their operation and then they too were responsible for getting documentation to their staff.

The normal lines of hierarchy were reinforced by the Sub-Committee structure and operation. The Systems staff, although influential on the Sub-Committees, took orders FROM the Sub-Committees. The Systems staff led in areas of overall coordination of the implementation and in technical support for hardware and software. In most cases the Sub-Committees and their Chairs were very willing to determine the progress of their part of the implementation. Only occasionally did they question whether all this work couldn't be done in a more time efficient way.

In initially assigning the tasks to the Sub-Committees we forgot all about assigning the NOTIS security tables. That was a major oversight since it was not only time consuming and picky, but very political. Each Sub-Committee was asked to set up the security profile within its function. This is the only area where a Sub-Committee could not come to agreement on an item. The Circulation Sub-Committee Chair insisted that security profiles must meet standards determined in Douglas, several members insisted that isolated branches had specific needs and could not be considered in the same light as Douglas. This problem was bumped to a higher level of management and resolved in favour of the branches. If we consider that this was the only case which I can remember where the issues were not resolved within the Sub-Committees, I think the process worked very well.

I don't mean to imply that the committees, once set up, ran by themselves. The Systems Coordinator, me, and the Systems Librarian, Gene Clevenger, monitored the whole operation. Each of us took a special interest in certain phases. For instance, since Gene was writing the data conversion program, he kept very careful eye on the deliberations of the Cataloguing Group. I was concerned with overall timing and coordination with the Computing Centre and Communication Services, so the Space Planning Group was my concern as well as general nagging. Gene and I watched the overall schedule, saw what was slipping and decided upon the action to take. Sometimes we threatened - "if you don't review the converted data NOW all the serial records will be incorrect"; "if you don't decide where you want the new terminals they'll go to another Unit". Sometimes we had to be aggressive to get a Chair's attention, occasionally even raising voices, but, to the best of my knowledge ruffled feathers soon became smooth again.

The Sub-Committees met regularly, every week then every 2 weeks. The Circulation, OPAC, and Technical Services Sub-Committees still meet every month. Minutes were recorded and distributed at all meetings with Sub-Committee members rotating as secretary. The minutes were also distributed to the chairs of the other Sub-committees. The Systems staff functioned as resources, not secretaries.

I should make a special note about training. A NOTIS User Services Librarian (Tom McGinn) trained our trainers. They numbered the usual 6 per session and so were chosen with a great deal of care. The Sub-Committees selected the trainers for their function but no one was allowed to cop out - to delegate the training to a lower level staff member. In all cases but one those people designated trainers rose to the occasion, thoroughly learned the function, and went on to train others effectively. Preliminary to the 'train the trainers' sessions, we asked all trainers to try every operation in their function. This was possible because terminals had been installed in most work areas months before Tom arrived. Initially, some struggled just to signon. In most cases, by the time Tom arrived, they were looking for nuances, not basics.

By September 1988 we were running OPAC, Cataloguing, Acquisitions and Circulation. The automated Authority File had its birth in September, 1988, and Serials Checkin was phased in starting March, 1989.

We profited from the broad base style of analysis and implementation which we chose to use, and we are still reaping the benefits. One goal predominated: the patron / client / user must be served in the most effective way possible. To do this we felt that the staff had to be involved in determining how that service was to be delivered.

The depth of the staff experience with automated systems helped make the transition successful, but the real key was keeping the end goal prominent at all times - to maximize the effectiveness of the

library, particularly of the automated system, for the patron. Decisions and choices were made with the patron paramount and with library operations secondary. Fortunately, there were few conflicts. But when there were, the patrons' needs were assigned the heavier weight.

The knowledge which the staff gained during the transition to NOTIS has proved invaluable in making another transition easier - that to revised work-flow in technical services. But that is another story for another person.....

In the past two years the confidence of the 1987 External Database Working Group in NOTIS connectivity has borne fruit. The LC and NLC Authority Files were loaded into Qline in 1990, adding to the Microlog and CIHM databases which were loaded in 1988 and 1989. Plans are developing for loading other external databases under control of NOTIS software.

Also, driven by the goal of meeting patron needs, we have added a "front-end" menu to the standard NOTIS menu set. This front-end provides function key access to:

- several locally mounted databases such as the occupation health and safety MSDS database, Studies in Communication and Information Technology Bibliography, and 12 QU information databases;
- over 60 other university library catalogues in Canada, US, and UK;
- Data Research Associate's database of LC MARC cataloguing;
- request forms for local services such as placing a hold on a book, requesting an acquisition, ordering an inter-library loan, asking a reference question, offering a suggestion, requesting rush cataloguing, requesting material from the storage facility.

This is just the beginning.....

QUEEN'S UNIVERSITY'S 1988 CONVERSION TO NOTIS
SUB-COMMITTEE TASKS AND TARGETS

CATALOGUING

Jan 1 Set Cataloguing training schedule.

Jan 15 + Assist in the data conversion by specifying conversion formats, analyzing converted data, spotting incorrect conversions, recommending changes to formats.

Feb 1 Determine the MARC tables for the Queen's NOTIS implementation.

Feb 1 Specify the order of data conversion.

Feb 1 Specify the procedures to be followed in the Cataloguing units during the data conversion and cutover period Feb through May 1988.

Feb 1 + Specify the NOTIS security profiles for cataloguing.

May 1 Cataloguing live.

ACQUISITIONS

Feb 1 Specify the procedures to be followed in the Acquisitions units during the Catalogue data conversion and cutover period Feb through May 1988.

Mar 1 Set Acquisitions training schedule.

Apr 1 Determine how the vendor and fund files will be transferred to NOTIS.

Apr 1 Specify the procedures for the cutover period when Acquisitions moves to NOTIS.

Apr 1 Specify the NOTIS security profiles for acquisitions.

May 1 Acquisitions live.

CIRCULATION

Jan 1 Specify the location tables for the NOTIS database.

Feb 1 Set up procedures for circulating items on the old system when the item record is not created by Cataloguing - that is, added volumes and copies for bib records copied to NOTIS after Feb 1988 as well as all new titles after May 1988.

May 1 Set up procedures for unlinked item record creation on the NOTIS database. (20,000 Course Reserve Photocopies)

Jun 1 Specify the Circulation Policy Tables and Calendar.

Jun 1 Set training schedule for Circulation staff.

Jun 1 Specify the procedures for the cutover to NOTIS circulation.

Jun 1 Determine policy and procedures for dealing with Circulation fines recorded on the old system.

Jun 1 Specify NOTIS security profiles for circulation.

Sep 1 Specify policy and manual procedures for transferring Geac circulation transactions to NOTIS.

Sep 15 Circulation live.

OPAC

Apr 1 Specify the text on the OPAC Help screens.

May 1 Write and print material (bookmark, self training workbook) for patrons on how to use the OPAC.

May 1 Set Public Service Training Schedule.

Aug 1 Create a flip-chart for the Douglas lobby showing how to use the OPAC. (Decided against this.)

May 1 OPAC live.

BEST COPY AVAILABLE

SPACE PLANNING

Feb 1 Determine how to stage the installation of the terminals.

Feb 1 Specify what additional furniture is required, when and where.

May 1 Terminals installed for OPAC and technical services.

Aug 1 Terminals installed for Circulation.

QLINE IMPLEMENTATION FACTS AND FIGURES
Queen's University, 1988

The core of Queen's University's Library Network (QLINE) is a sophisticated database management software package called NOTIS.

November, 1987 the software was installed by Computing and Communications Services on Queen's IBM 4381 model R23 computer.

April, 1988 the database conversion from Geac to Qline was complete and the public catalogue, including keyword searching with boolean logic, was available on Qline.

April, 1988 Cataloguing and acquisitions operations were transferred to Qline.

September, 1988 Authority File started on Qline.

September, 1988 Circulation operations were transferred to Qline.

October, 1988 Geac operations stopped.

March, 1989 Serials check-in implemented on Qline.

Computer terminals on the Queen's campus are connected via a Gandalf Starmaster data communications switch to the computer in Dupuis Hall. At the time of the 1988 NOTIS implementation there were:

- 70 Qline terminals capable of displaying accents available for public use at 26 different library sites.
- 31 Terminals used for circulation functions at 18 different sites.
- 90 Terminals used for a variety of staff functions such as cataloguing and acquisitions.
- More than 3000 on-campus terminals capable of Qline access.
- 20 Phone lines available for dial-up access to Qline from anywhere in the world.

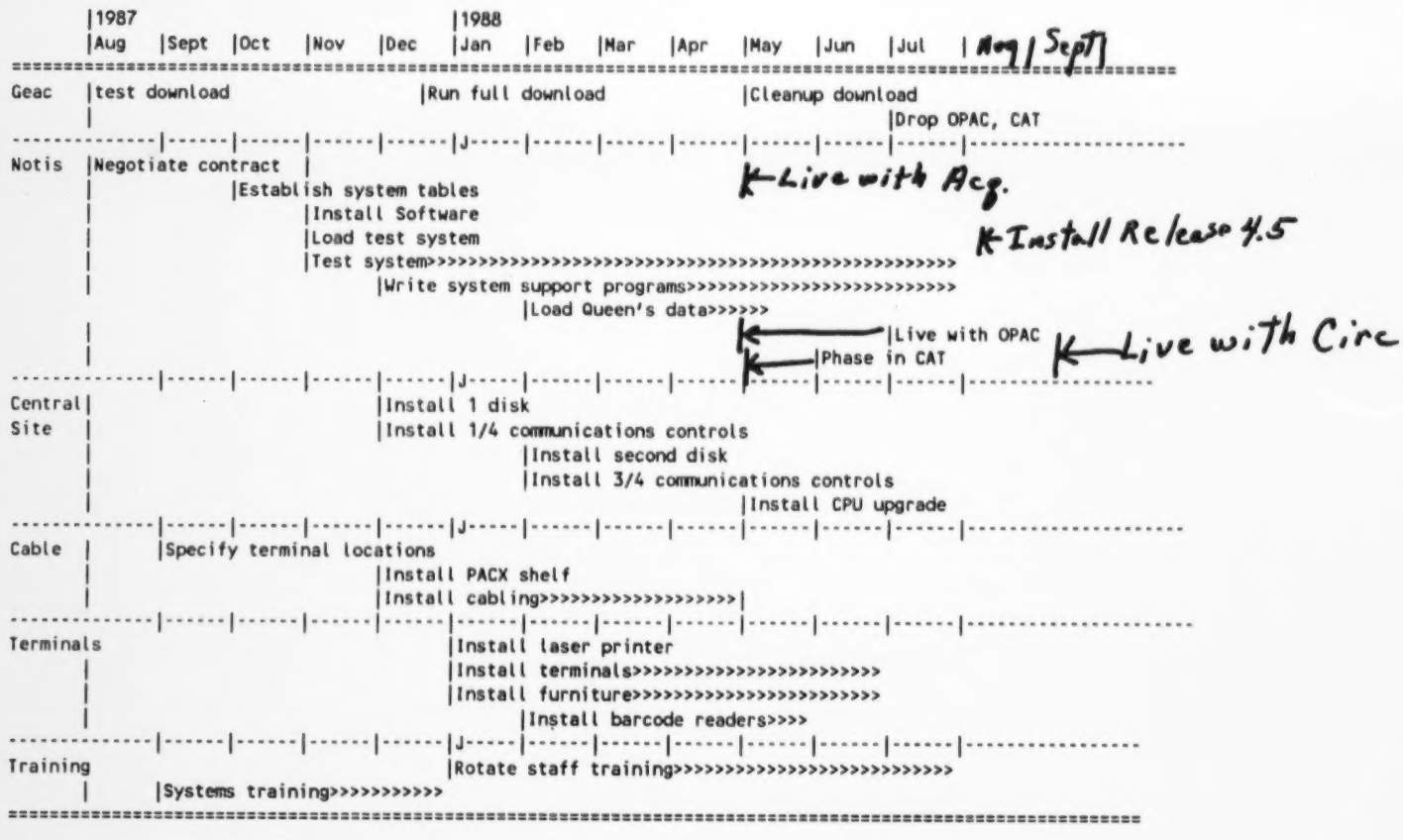
The Qline database contains records for items on order, in process, and catalogued throughout the Library system. The Qline display shows where an item is shelved, if it is charged out to a patron and when it is due back. The database had about 7,000,000,000 bytes, that's 7 billion characters, when it was loaded in 1988:

- 1,050,000 Bibliographic records,
- 1,550,000 Physical volume records,
- 3,000,000 Non-book (microforms, etc.) items recorded,
- 16,000 Patron records,
- 38,000,000 Keywords for searching.

The transaction rates during the first year of operation included:

- 360,361 Non-reserve items borrowed,
- 184,620 Reserve items borrowed,
- 32,000 Bibliographic records added,
- 40,000 Physical volumes added,
- 170,000 Non-book (microforms, etc) items recorded.

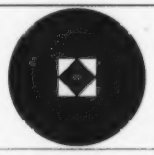
IMPLEMENTATION SCHEDULE FOR NOTIS
AS REVISED NOVEMBER 5, 1987
FOR PERIOD AUGUST 1987 TO JULY 1988


1987
1988
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug | Sept
Geac
test download
Run full download
Cleanup download
Drop OPAC, CAT
Notis
Negotiate contract
Establish system tables
Install Software
Load test system
Test system>>>

SYSTEMS AND PROCEDURES EXCHANGE CENTER

MARKETING AND USER GUIDES

ASSOCIATION OF RESEARCH LIBRARIES



OFFICE OF MANAGEMENT SERVICES

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

November 1, 1990 Number 1

EDITOR'S NOTE: *What! Another Library newsletter? Didn't we start another newsletter just a few weeks ago? Do we really need another one? The answers to these questions are "yes, yes, and yes."*

The Library Automation Planning (LAP) project is one of the major components of the much larger Strategic Planning process and both will be underway during the coming months. Although closely related, both have separate committees and task groups. The LAP project's activities and issues will be of high interest to all staff.

***LAPtalk** will be issued by I & O on an occasional basis for the foreseeable future. Its frequency will reflect the activity of the Library Automation Planning project.*

Library Automation Planning (LAP) Project

The Library Administration has initiated a Library Automation Planning (LAP) project to undertake a comprehensive review of the Library's automated systems requirements and evaluate the options that will best serve the Library in the coming years.

The LAP project must address some immediate and critical issues, especially the replacement of our ailing circulation system and an improved online public access catalogue (OPAC) facility. Long-term development or replacement options for the Library's other systems also need to be considered.

RMG Consultants of Chicago is assisting the Library with the LAP project. RMG is the largest library automation consulting group in North America and has considerable experience with procedures for the successful completion of such a project. Rob McGee, President of RMG, conducted a two-day planning session in September for the Library. He has also provided considerable background information including draft requirements and Request for Proposals (RFP) documents.

The LAP project will be on a very tight schedule during the coming months to complete the requirements and RFP documents to be sent to vendors of integrated library systems by early 1991. As soon as vendor responses are received, task groups and committees will review the information and identify the most appropriate solutions for the Library.

Task Groups Established

The following task groups and committees have been established for the LAP project:

Review Group - chaired by Dr. Ruth Patrick. Responsible for overall management and major decisions. Comprised primarily of key university and library administrative staff.

Negotiating Team - chair to be determined. Responsible for negotiating purchase agreement/contract with vendor(s) for some or all of the hardware, software and services.

Evaluation Team - chaired by Bob MacDonald. Responsible for final evaluation of proposals, identification of systems options, and provision of recommendations to the Review Group.

Project Management Team - chaired by Brian Owen. Responsible for coordination and general project management of the specific task groups listed below.

OPAC Task Group - chaired by Julie Stevens. Responsible for developing OPAC system requirements and reviewing subsequent responses from vendors.

Circulation Task Group - chaired by Martha Whitehead. Responsible for developing circulation system requirements and reviewing subsequent responses from vendors.

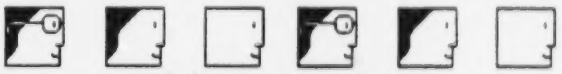
Acquisitions Task Group - chaired by Joyce Davidson. Responsible for developing acquisitions system requirements and reviewing subsequent responses from vendors.

Serials Task Group - chaired by Nadine Baldwin. Responsible for developing serials system requirements and reviewing subsequent responses from vendors.

Cataloguing Task Group - chaired by Ann Turner. Responsible for developing cataloguing system requirements and reviewing subsequent responses from vendors.

Hardware/Communications Task Group - chaired by Don Dennis. Responsible for developing hardware and computer communications system requirements and reviewing subsequent responses from vendors.

Membership for the committees and task groups will be finalized shortly. About sixty library staff from all areas and levels, and twenty people from the university administration, computing services, and purchasing will be involved directly in the LAP project.



Advice & comments on this newsletter to I&O, Main Library or call 228-2076.

Mark Your Calendars!

To assist the task groups in the preparation of the requirements and RFP documents, a series of vendor demonstrations have been arranged during November and December. Each of the following five vendors will present a two-day demonstration of their system:

Sobeco MULTILIS
November 13 - 14

Innovative Interfaces
November 19 - 20

NOTIS Systems
November 29 - 30

Data Research Association (DRA)
December 3 - 4

DYNIX
December 5 - 6

During the morning of the first day of each vendor's demonstration, a general overview of the system will be presented. The remaining day and a half will be devoted to more detailed presentations on subsystems such as circulation, OPAC, cataloguing, etc. The general overview sessions are open to all interested Library staff; the detailed subsystem presentations are intended for the task groups. More information about the sessions, including times and locations, will be sent out soon.

The above vendors were selected as representative of the larger automated library systems market. The Library will send out the requirements and RFP documents in early 1991 to many more vendors.

124 130

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

April 25, 1991 Number 3

Evaluation of RFPs

Nine proposals were received by the April 2, 1991 deadline (extended from the original March 28, 1991 date) for the Request for Proposals (RFPs) on Automated Library Systems and Services. The following vendors submitted responses:

- CARL (Colorado Alliance of Research Libraries)
- DRA (Data Research Associates)
- Dynix
- Geac
- Innovative Interfaces
- Maxwell Online (for BRS Onsite)
- MultiLIS
- Notis
- Unisys/PALS

The **Evaluation Team** met for two days, April 15 and 16, to begin the review of the proposals. On April 17, members of all the Task Groups — *Acquisitions/Serials; Cataloguing; Circulation; Hardware/Communications;* and *OPAC* — were provided with an orientation session on the more detailed evaluation process they will perform over the next month.

Each Task Group will review the appropriate sections in each vendor's response and prepare a report for presentation to the Evaluation Team during the week of May 20 - 24. By the end of that week, the objective is to have identified the vendor proposals for "shortlisting".

The **Evaluation Team** will play the central role in reviewing the findings of the Task Groups and making decisions about the proposals.

The **Evaluation Team** members are:

Nadine Baldwin
Erik de Bruijn
Don Dennis
Jocelyn Godolphin
Tony Jeffreys
Heather Keate
Bob MacDonald
Brian Owen
Ruth Patrick
Margaret Price
Julie Stevens
Ann Turner
Bill Watson
Martha Whitehead

This update report to you is very general because at this stage in the evaluation of the RFPs it is important to remember that the Library is engaged in a formal procurement process with all of the associated rules of confidentiality. We ask that you not discuss the results of the evaluation process to people outside the Library at this time.

UBC Library systems and in-house development

During the **Evaluation Team** meetings from April 15 - 17 considerable time was devoted to a discussion of local systems development. By the third day a major decision was reached by the group — the Systems Division proposal to redevelop circulation and OPAC was "set aside" and it was agreed to concentrate on a review and evaluation of the vendors' proposals.

This is a significant decision which establishes a change in direction for automated library systems at UBC Library. Some addi-

tional explanation and clarification is in order. There were both immediate, and long term, issues involved in the decision.

The **Evaluation Team** felt that the number of proposals received from vendors made it likely that at least one of them would be able to provide a satisfactory solution for circulation and OPAC that could be implemented more quickly than completely redeveloping these systems internally.

There was also concern that Systems Division staff would need to be closely involved in the review and evaluation of the vendor proposals and therefore it would be difficult for them to work concurrently on the "in-house" proposal and the ongoing maintenance of all of the local systems already in place.

Some long-term issues also influenced the decision. No computer system lasts forever — hardware, software, operating systems and other components are constantly changing. At UBC Library, the number and complexity of the systems supported locally has grown steadily; but the number of staff dedicated to the development and maintenance of these systems has remained almost constant. In fact, the **Evaluation Team** generally agreed that the number of systems staff required at UBC Library was not likely to decrease. The demands for local expertise and support would continue to grow at the Library, even with vendor-supplied packages in some areas.

The recent announcement of Bob MacDonald's retirement at the end of the year sharpened the concern and also emphasized the critical importance of the "people" resources required for successful systems development. UBC Library has enjoyed the benefits of very successful local systems development for over twenty-five years — a record probably difficult to match anywhere in North America. But people retire, change jobs, etc.

This decision was not reached easily or quickly; neither will it occur easily or quickly. It initiates a transition period that will take at least three to five years, and possibly longer. It will be necessary for UBC Library to operate a hybrid system that will consist of both local and vendor supplied systems. This will present some challenges, but it may also have some advantages. Many of the local systems are still very healthy, in fact it may be difficult to find a suitable replacement for some of them immediately.

The following is taken directly from the RFP and is an appropriate summary:

"The UBC Library has identified Phase 1 as the period from 1992 to 1997. The priority areas to be addressed as soon as possible in Phase 1 are the circulation system and online public access catalogue systems. Support for providing local online access to databases obtained from commercial vendors and other sources is also very important. Closely related to the priority areas is the requirement to complete retrospective conversion of the UBC Library's bibliographic database and to barcode items for circulation purposes.

Priority areas in the latter part of Phase 1 will be determined after vendors' responses to the eight configuration options in the RFP have been reviewed and evaluated. Concurrent with that process, the UBC Library will determine the future of local systems development. It is likely the redevelopment and/or replacement of the technical services systems (acquisitions, cataloguing/authority control, serials) will be priority areas before the end of Phase 1."

Advice & comments on this newsletter to I&O, Main Library or call 822-2076.

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

February 12, 1991 Number 2

Heroic Endeavor

On Thursday, January 31st a Request for Proposal (RFP) for Automated Library Systems and Services for the University of British Columbia was issued by the UBC Purchasing Department. Meeting this deadline would not have been possible without the extraordinary efforts of many Library staff. At least fifty Library staff contributed to the RFP through their participation on the following Task Groups:

- Project Management Team
- OPAC Task Group
- Circulation Task Group
- Acquisitions Task Group
- Serials Task Group
- Cataloguing Task Group
- Hardware/Communications Task Group

The members of the Project Management Team—Brian Owen, Bob MacDonald, Heather Keate, Bill Watson, Julie Stevens, Nadine Baldwin, Joyce Davidson, Ann Turner, Martha Whitehead, and Don Dennis—were responsible for the bulk of the editing and coordination work, including a marathon meeting where almost the entire document was reviewed.

Several individuals merit special mention:

★ Jana Tyner—who did most of the word processing for the RFP and had to mix and merge Microsoft WORD documents from various external and internal sources, usually under extremely tight deadlines.

★ Brian Owen—who spent many hours writing, editing and bringing everything together in time to meet the deadline (there was at least one night at the microcomputer that lasted past 4:00am).

★ Don Dennis—who learned Microsoft Works, with help from Pete Edgar, to prepare statistical tables for the RFP (and missed his Thursday night bowling to get the master copy ready).

★ Julie Stevens—who did much of the final editing for the huge section describing all the subsystems.

★ Ann Doyle—who had to rearrange and rewrite the one hundred plus specific questions that were posed in the RFP.

★ David Winter and Martha Whitehead—who wrote several of the system requirements sections from scratch.

★ UBC Media Services—who set some production records in printing the document and deserve a gold medal for helping the Library meet the January 31st deadline.

★ Rob McGee, of RMG Consultants, also provided invaluable assistance. The Library used generic requirements and RFP documents provided by RMG as the foundation for the final RFP. Rob also spent three days at UBC from January 7 - 9 (during the whiteout) to assist the Project Management Team in preparing the RFP.

What exactly is an RFP?

A Request for Proposal (RFP) is a very common method used to procure equipment and services. The organization describes what it wants in as much detail as possible and asks prospective vendors to respond with detailed proposals with costs. RFP's are often used for large and complex projects where there may be two or more possible solutions, and it is difficult to determine exactly what you really want until the vendors tell you what they can provide.

The RFP was officially issued by the UBC Purchasing Department. They are responsible for controlling the formal process—inquiries from vendors must all go through Mr. Allan Lackie of the UBC Purchasing Department. They will answer procedural questions directly and forward more technical questions to appropriate UBC Library staff. Any vendors making direct inquiries to Library staff should be asked to contact Mr. Allan Lackie. Although this may sound rather formal and bureaucratic, it ensures that all vendors are treated equally and fairly and is ultimately in the best interests of all parties involved.

What sort of systems are we really interested in—everything? Or are there some priorities like Circulation?

The RFP describes seventeen library subsystems ranging from typical library applications like Circulation and Cataloguing/ Authority Control to more specialized systems like Local Commercial Databases (ERIC and PsycINFO) and Interlibrary Loan Management. Vendors have been asked to respond to eight possible configuration options that include various combinations of these subsystems and reflect our priorities. In terms of equipment requirements, the configuration options range from 175 to almost simultaneous 800 users.

The priorities for implementation are Circulation and an Online Public Access Catalogue. Support for providing local online access to databases obtained from commercial vendors and other sources is also very important. These systems are included in one or more of of the eight configuration options.

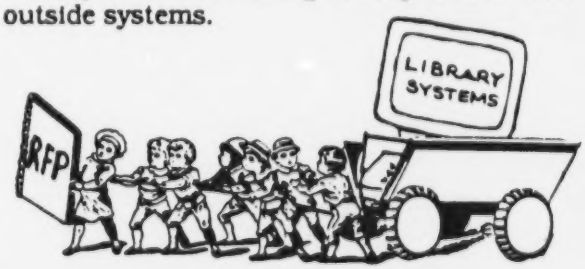
One configuration option asks vendors to propose a system that can support all seventeen subsystems. To the best of our knowledge there is no single vendor that has such a total system at this time. One of the critical areas to be evaluated is the development claims and future plans all vendors will present in their responses to the RFP.

What will happen (or not happen) with the local systems?

This is a difficult one to answer right now. The following quotation directly from the first page of the RFP summarizes the situation:

The University may elect to continue to develop some or all of its automated library systems internally. The Systems Division of the University Library will be submitting an informal response to the RFP. The decision to develop systems internally will be determined by the University evaluating responses to this RFP.

At this point, the Library wants to keep all options open. Some of the eight configuration options described cover the possibility of local systems continuing in conjunction with outside systems.



What library system vendors are going to receive a copy of the RFP? Will any of them respond?

Seventeen library system vendors were sent a copy of the RFP on January 31, 1991. They include:

Ameritech
BRS Onsite
CARL
Carlyle
CLSI
Columbia
DRA
Dynix
Eloquent
Geac
Innovative Interfaces
Sobeco/Multilis
NOTIS
International Library Systems
TKM
Unisys/PALS
VTLS

A particular effort was made to send the RFP to all known Canadian vendors of automated library systems. An announcement on the RFP was also placed in the Tuesday, January 29, 1991 issue of the *Globe & Mail*.

After reading the RFP, some vendors may decide it is too large and complex a project for them to support adequately and will choose not to respond. However, we are certain some vendors will rise to the challenge. A number of them have installed systems in very large libraries that are comparable to UBC Library.

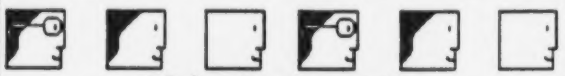
What happens when we get some responses back from vendors?

Let's perform some quick math here. The RFP we sent out is about 1 1/4 inches thick. As a rule of thumb, most vendors respond to RFP's at a ratio of four to one. That is, we can expect to receive about five inches of paper from each vendor. If, for example, ten vendors respond to the RFP we will have about fifty inches, or over four feet, of material to review and evaluate.

The deadline for responses is Thursday, March 28, 1991 at 3:00 p.m. Pacific Standard Time. At that time, the Evaluation Team and Task Groups will swing into action. The UBC Purchasing Department and Rob McGee, of RMG Consultants, will also assist us during this phase.

The first task will be the initial evaluation of all proposals followed by the selection of short-listed vendors. The next task will be a more intensive evaluation of the short-listed vendors that may include system demonstrations and site visits, followed by the selection of the successful vendor.

But wait—let's save some of this discussion for the next issue of *LAPtalk* in which we will introduce the intriguing concept of the "fatal flaw."



Advice & comments on this newsletter to I&O, Main Library or call 228-2076.

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

June 11, 1991 Number 4

Short-listed Vendors

The Library has decided on the short-list of vendors for an automated library system following the evaluation of the responses to the Request for Proposal (RFP). During May, all the Library Automation Planning Task Groups adhered to a heavy schedule of meetings and prepared detailed summaries containing questions, problems, concerns, issues and other comments on each vendor's response to the RFP. This information was reviewed and discussed by the **Evaluation Team** May 21 - 24 and then used to apply the evaluation criteria listed in the RFP to each vendor's response. As a result, some vendors were eliminated from further consideration.

How many vendors have been short-listed and who are they?

Well...we would prefer not to be too specific at this time, at least in print. The eliminated vendors are still being notified and we have deliberately refrained from telling the short-listed vendors who their competition is and how many vendors are still under consideration.

Why? We are not being capriciously obtuse. Partly, the secrecy reflects the confidential nature of the RFP process in which we are still engaged. Mostly, it reflects our determination to maintain the best possible position for the Library in negotiating with the vendors. The less the vendors know about the number and nature of their competitors, the better for us.

Do you really want to know who the short-listed vendors are?
If you are really curious, you can ask any member of the Library Automation Planning Task Groups.

Notice to Short-listed Vendors

On Wednesday, May 29 a *Notice to Short-Listed Vendors* (NSLV) was sent out containing more questions. This document also identifies the two RFP configuration options the Library is interested in implementing at this time. In the original RFP there were eight configuration options ranging from a system to support circulation and OPAC to one that would support everything. In the NSLV, the two configuration options are:

1. Circulation and OPAC
2. Circulation, OPAC and Additional Databases

One of the major implications of concentrating on these two options is the Library expects to continue using the local system for technical services and other more specialized applications for some time. There are concerns that some of the technical services applications could not be easily or immediately replaced by

a vendor system. In any event, it will take at least one to two years to convert and implement circulation and OPAC.

The short-listed vendors must return their responses to the NSLV by June 25, 1991. The Task Groups and Evaluation Team will go through another round of review and evaluation at that time with the objective of identifying the most acceptable vendor system by mid-July.

Vendor Demonstrations

Some (but not all) of the short-listed vendors will be demonstrating their systems at the Library during the month of June. Most of the sessions are intended for Library Automation Planning Task Groups and Evaluation Team members only. However, there will be at least two general sessions open to all interested Library staff.

General Overview Sessions

There will be a general overview session by each vendor:
9:00 a.m. - 10:30 a.m.
Room 835, Library School, Main Library

Thursday, June 13
Monday, June 17
Thursday, June 20

Online Demonstrations

An online and, possibly, "hands-on" demonstration session by each vendor has also been scheduled for:
1:30 p.m - 5:00 p.m.
Sedgewick Conference Room

Friday, June 14
Tuesday, June 18
Friday, June 21

These demonstrations are intended to be informal "drop-in" sessions.

Once again, check with any member of the Library Automation Planning Task Groups to find out which vendors are coming on which dates. There will be some new vendors that have not previously demonstrated their systems at the Library.

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

July 25, 1991 Number 5

Short List of Vendors Evaluated

The Library Automation Planning (LAP) Evaluation Team completed the review of responses to the Notice to Short-listed Vendors during meetings from July 10th to 12th. However, a final decision on a vendor system was not reached.

Several additional tasks must be completed during the next six to eight weeks, including:

- Further investigations relating to the feasibility of various hardware platforms and their compatibility with existing and planned systems on campus.
- Evaluating options for mounting commercial databases.
- Reviewing the feasibility of maintaining some or all of the local LDMS system for the short term or longer.

The Evaluation Team will meet again August 7th to 9th to discuss the information collected on the above. It is likely another meeting will also be held in late August.

Final evaluations, budget plans, and recommendations will be submitted to the University Administration in September for a decision.

Request for Information (RFI) on Microcomputer/CD-ROM Based Systems

The range of options for the local mounting of commercial databases has been one of the difficult issues confronting the Library Automation Planning project during the last six months.

The Library's local system has already mounted several outside databases such as *ERIC* and *PscyINFO*. Some of the automated library system vendors are also offering packages to support commercial databases. For example, NOTIS has a module called *Multiple Databases Access System (MDAS)*. In addition, there are commercial products such as *BRS/Onsite* that provide software to be used on a central computing facility. There are also vendors offering microcomputer/CD-ROM based systems for local commercial database support.

Some of these options have been reviewed as part of the Request for Proposal (RFP) evaluation process. However, as Library staff have been engaged in reviewing the RFP proposals during the last six months, new products and enhancements have continued to appear on the market. This is especially true for some of the microcomputer/CD-ROM based systems. The Evaluation Team decided to examine all the options more closely before making a decision.

So, the classic first step was quickly initiated—another task group was struck. The Commercial Databases Task Group reports to the Evaluation Team. Its members are:

Margaret Price, *Woodward*, Chair
Lee Ann Bryant, *Curric Lab*
Elizabeth Caskey, *HSSD*
Hilde Colenbrander, *Data Library*
Ann Doyle, *Systems*
Pat Lysyk, *Hamber*
Mary Mitchell, *Law*
Barbara Saint, *St Paul's*
Bonita Stableford, *Science*
Ron Simmer, *PATSCAN*

The Task Group has prepared a Request for Information (RFI) which was issued on July 19th. An RFI is similar to a Request for Proposal but it is much shorter and more informal. Organizations use RFI's as a preliminary step to issuing an RFP. Sometimes it is a useful way to determine a short list of vendors who will then receive a more formal RFP.

The Task Group has also arranged two vendor demonstrations for all interested staff (see box). The RFI responses are due August 1st. The Task Group will evaluate the responses and make a recommendation to the Evaluation Team. It is expected a decision on a system to support locally mounted commercial databases will be made by mid-September.

Vendor Demonstrations

Two vendors, *CD Plus* and *BRS*, will demonstrate their products to support commercial databases during August. All interested staff are invited to attend these sessions.

PlusNet2 from CD Plus

DATE: Thursday, August 1st

TIME: 9:00 to noon

PLACE: Sherrington Room, Woodward Library

BRS/Onsite

DATE: Tuesday, August 13th

TIME: 9:00 to noon

PLACE: Sherrington Room, Woodward Library

133145

LAPtalk

AT UNIVERSITY OF BRITISH COLUMBIA LIBRARY

October 21, 1991 Number 6

It's Showtime, Folks!

It has been a few months since the last issue of *LAPtalk* appeared and much has happened, although little has been widely publicized. But finally the Request For Proposal (RFP) veil of confidentiality can be lifted and the outcome of the LAP project revealed. The Library Automation Planning Evaluation Team made the following recommendation to the University Administration in early September, 1991:

> *That the UBC Library continue to use the LDMS System to redevelop the existing circulation system; to enhance the Online Public Access Catalogue System; and to operate and maintain other Library application modules.*

This recommendation was supported by a functional comparison and evaluation of the commercial and local systems; a detailed cost analysis; budget and cash flow estimates; a comprehensive project control plan for the re-development of the local circulation system; a five year technology plan, and other background documents.

After review by a special Advisory Committee to the President and the University Administration, the recommendation has been accepted and the Library has been given approval to proceed with the immediate priority project — redevelopment of the circulation system and barcoding of the UBC Library collection.

One member of the Evaluation Team aptly described the recommendation as an "unexpected outcome." At the commencement of the LAP project the most widely held expectation was that the UBC Library would identify and purchase the most suitable commercial automated library system. In April, 1991 *LAPtalk* No. 3 even reported on the decision of the Evaluation Team to "set aside" the option of continued local development and concentrate on the evaluation of vendor-supplied systems.

The Evaluation Team's decision was based on a very thorough functional evaluation. Although some of the commercial vendor systems ranked higher for specific modules, the combined modules of the local system ranked higher overall.

The choice of the local system was supported by a comprehensive budget analysis which indicated that local development was the most cost-effective option for the Library at this time.

The LAP project required almost a year to complete and involved considerable time and effort on the part of many Library staff. It was a very worthwhile process that accomplished much more than its stated objectives. It provided UBC Library staff with a comprehensive understanding of the current state of information technology and an appreciation of the issues that must be addressed. It also introduced a methodology or discipline that is already being reapplied to similar projects and activities during the next year.

Circulation Redevelopment and Barcoding Project Commences

As finishing details were being completed for the LAP project, preliminary planning and organizational activity for a major new automation project at the UBC Library was quietly commencing. The most visible manifestation of this transition during the past few weeks was the extensive involvement of Martha Whitehead from Sedgewick Library in numerous Systems Division meetings at LPC.

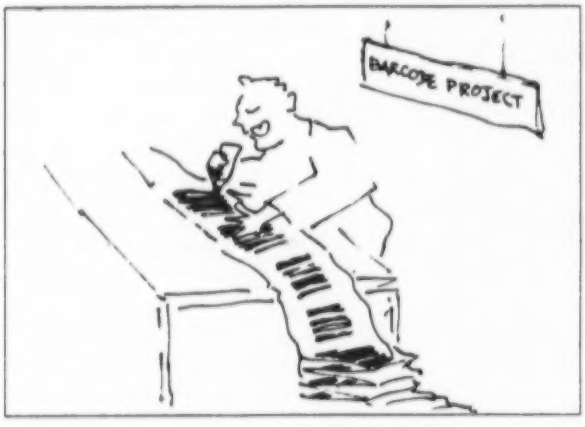
The Library is embarking on a major redevelopment of the local circulation system and the barcoding of almost three million items in the collection. This project has been divided into two major phases. Phase I must be completed by September, 1992 and will address the following critical requirements:

- to replace the aging EPIC circulation terminals with microcomputer-based workstations utilizing barwands or scanners.
- to implement support for a new University ID card that will replace the current library/AMS student identification card.
- to commence total functional redevelopment of the circulation system by converting existing (or equivalent) functions on the old system to an "online" mode.
- to barcode the UBC Library collection and create/convert machine readable item records sufficient for circulation purposes.

Phase II has an expected finish date of September, 1993 and will complete the redevelopment of the circulation system. Many of the features not currently available in the local system will be incorporated in the new system during the Phase II period.

Project staff will be required for varying periods of time to work on specific tasks. Martha Whitehead of Sedgewick Library has been seconded to Systems Division as Circulation Project Librarian for two years. She will be responsible for much of the design and implementation of the new circulation system.

Lynne Redenbach has been seconded as the Barcoding Project Manager on a half-time basis for nine months. She will be responsible for organizing and coordinating barcoding and conversion activities.



Several other special project staff will be required, plus a large team of "barcoders" during the period of April to August, 1992.

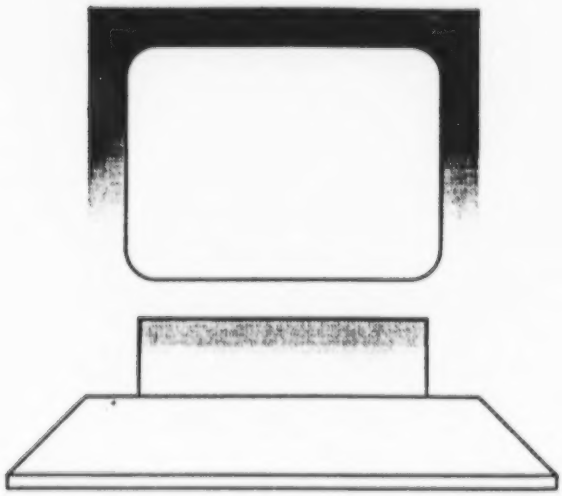
Oh, we almost forgot...there will be a few new committees (or old refurbished ones) required, but we can save these exciting details for...

Future Issues of *LAPtalk*

LAPtalk will continue to be published to provide general information, updates, and committee membership lists for the circulation redevelopment project and other automation projects.

NOTIS

The online catalog of library holdings for The University of Kentucky



QUICK START!

University of Kentucky

BASIC COMMANDS

A=	to find an author
T=	to find a title
SL=	to find a Library of Congress Subject Heading
SM=	to find a medical subject
K=	to find a key word
H	for help at any screen
EXP	for a more detailed explanation of each command
STOP	to exit the system

To Search by AUTHOR

a=*personal name*

Type **a=** followed by the author's last name and all or part of the first and press **<enter>.**
Omit punctuation.

a=*corporate author*

*Remember that countries, organizations and government agencies can be authors. Type them in logical order and omit punctuation.

To Search by TITLE

t=*title*

t=*title (omit initial article)*

Type **t=**followed by all or the first few words of a title and **<enter>**.
Omit initial articles (a, an, the, le...).

To Search by SUBJECT

sl=*LC Subject Heading*
sm=*Medical Subject Heading*

NOTIS uses two types of subject headings for the most part: Library of Congress and Medical Subject Headings. Consult the printed lists to identify proper subject headings.

sl=*subject--subheading*
Use two hyphens before subheadings.

To Search by Key Word

k=*keyword*

Type **k=**followed by a key word and **<enter>**. A key word search allows you to identify materials that contain your key word anywhere in the record.

To Combine Search Terms

A key word search allows you to combine two or more terms in a search statement.

ADJ k=*word adj word*
finds all records in which example is adjacent to example

WITH k=*word with word*
finds all records in which example and example are in the same field (e.g. both are in teh title).

AND k=*word and word*
finds all records which contain both example and example.

OR `k=word or word`
finds all records that contain either example or example.

To Use Field Codes

```
K=word.au.and
  word.ti.
```

In key word searching you can limit the search to particular fields with suffixes called field codes.

```
.au.    author
.ti.    title
.su.    subject
```

Be sure to include periods before and after each suffix. Type **`exp k <enter>`** for a complete explanation of key word searching with boolean operators and field codes.

What Does NOTIS Include?

The University of Kentucky online catalog contains records of books, periodicals, microforms, maps, music scores, and audiovisual materials owned by the library. It does **not** include **all** materials owned by the library.

Quick Tips for a Quick Start

**For an online introduction, press <enter> at the opening screen.*

**To see a detailed explanation of commands, type EXP followed by a command and <enter>.*

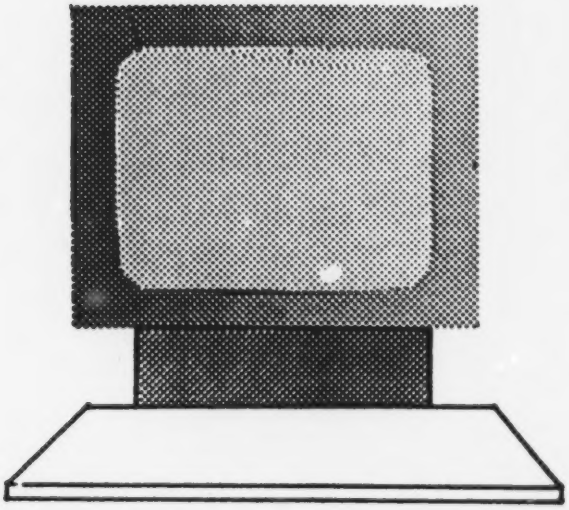
Example: EXP A <enter> to get more information on searching by author.

**For online help at any screen, type H <enter>.*

**You may begin a new search at any time from any screen.*

MDAS

(Multiple Database Access System)



Introduction to the MEDLINE (MEDL) and ERIC Databases

With detailed search instructions for the MEDL database

MDAS

MDAS (Multiple Database Access System) provides the University community with access to the MEDLINE and ERIC databases via the same NOTIS command structure used for searching the library online card catalog (OPAC).

Unlike the OPAC, searching MDAS requires a University of Kentucky Computing Center (UKCC) password. Individuals who currently have accounts on FRS, Prime, SIS, etc. should be able to use the same password to use MEDLINE or ERIC on MDAS. UK students, faculty, and staff may obtain password forms at any UK library.

MDAS is accessed from the same terminals as the OPAC in the UK libraries. You can also search MDAS (and the OPAC) from *any* computer equipped with a modem or any computer on the UK campus directly connected to UKCC. Detailed logon procedures are available at any UK library.

MEDL

MEDL is an English-only subset (1989 to present) of the MEDLINE database. MEDLINE, which is produced by the National Library of Medicine contains references from *Index Medicus*, *Index to Dental Literature*, and *International Nursing Index* and is updated monthly. The database includes references to clinical, administrative, and research articles from over

3,500 journals in the health and biomedical sciences. An annual *List of Serials Indexed for Online Users* provides the titles and abbreviations of journals and indicates if a journal is fully or selectively indexed for the database. With a few exceptions, letters, editorials, book reviews, news items, abstracts from conferences, and books or book chapters are *not* included in MEDLINE.

Each reference in MEDLINE is assigned descriptors taken from the standardized Medical Subject Headings (MeSH) list. Use of valid descriptors allows you to search more comprehensively. Copies of MeSH are available in the Medical Center Library and in the King Reference Department.

ERIC

ERIC (Educational Resources Information Centers) is the world's largest source of education information, containing citations and abstracts to more than 700,000 documents and journal articles. The ERIC database is produced by the U.S. Department of Education and dates back to 1966. ERIC contains information not found in MEDLINE concerning healthcare-related teaching, patient education, educational psychology, etc.

Many of the journals covered in ERIC are held by libraries at UK. Consult the OPAC (the online catalog) to determine the location of journal titles. ERIC also includes documents available on microfiche at the UK Education Library.

BASIC SEARCHING

START displays the initial database selection menu and erases all previous searches.

HELP or **H** allows you to view help screens and may be used at any point in the search.

EXP gives more detailed explanations and must be used with a command. For example, **EXP K** gives an explanation of keyword searching.

REVIEW or **R** allows you to review or revise previous search statements. As many as ten previous search statements are displayed by the **REVIEW** command

CHOOSE or **CHO** allows you to change databases. For example, to change from MEDL to OPAC, type **CHO OPAC**. Once you have changed databases, you are still able to use searches composed in the previous database.

STOP allows remote users to exit the library system and return to the gateway menu.

? used at the end of a word allows you to retrieve a term with variant word endings. This is known as "truncation."

```
k=neoplas?
```

The above example will search "neoplasm," or "neoplasms," or "neoplastic." Use truncation judiciously! **K=rat?** would search hundreds of terms including "rate," "rather," and even "rattlesnakes."

SEARCH FORMAT

MEDL is searched using KEYWORDS. The format for a basic search is:

K=term

A keyword may be any word in a record except a stopword. The stopwords on NOTIS can be viewed using the EXP K command.

Combining terms

System commands can be used to combine words and phrases in a variety of ways. The following examples demonstrate some of the ways terms can be combined.

AND narrows searches; both terms *must* appear in the record.

k=adolescence **and** hypertension

OR broadens searches; either term may be mentioned in the record.

k=aspirin **or** NSAID?

NOT eliminates a concept; use with caution—you may exclude relevant items.

k=contraceptive? **not** animal

(The above example eliminates some comparative human studies.)

ADJ used to search for terms directly adjacent to one another.

k=factor **adj** VIII

WITH used to find records in which terms appear in the same sentence in any order. It is not as specific as adj but allows for intervening words. With is the "default" operator, i.e., with is assumed by the system if you just leave a space between words.

k=arthritis rheumatoid

k=arthritis **with** rheumatoid

(Both of the above examples would get the same results. They would find the phrase "rheumatoid arthritis" as well as the descriptor "arthritis, rheumatoid." Note: some irrelevant references may be obtained, e.g., k=nursing with home? will retrieve both "home nursing" and "nursing homes.")

Restricting search terms

You may limit a word or phrase to one particular "field" or part of a record to make a search more specific.

k=brown.au. (limits to author; this eliminates references that discuss "brown fat")

k=drug.ti. (limits to references that have the word drug in the title)

k=neoplasms.su. (limits to references that have the word neoplasms in the subject or descriptor field)

k=neoplasms.su,ti. (limits to references that have neoplasms in the subject or title field)

Limiting a search

Review articles:

k=alzheimers and review.ab. and ref.ab.

Human studies:

k=alzheimers and human.su.

Major concept:

k=alzheimers with mj

Journal subset:

k=alzheimers and a.sb. (major clinical journals)

k=alzheimers and n.sb. (nursing jrnls)

k=alzheimers and d.sb. (dentistry jrnls)

MeSH subheadings:

k=alzheimers with (ge or et)

(Retrieves articles on genetic or etiological aspects of the disease. The subheading may also be spelled out, e.g., "genetics.")

Date:

k=alzheimers and 1990.yr.

k=alzheimers and 1989?-1991.yr.

Specific journal:

k=lasers and ann adj intern adj med.so.

k=aspirin and (jama or ann adj neurol).so.

(Use the journal title abbreviations listed in the *List of Serials Indexed for Online Users.*)

MEDL SEARCH TIPS

• Use valid MeSH descriptors whenever possible to increase precision and comprehensiveness. Searching on terms such as "aids," for example, retrieves articles not only on the disease, but also on "hearing aids" and "walking aids," etc. Use of the MeSH descriptor "acquired immunodeficiency syndrome" avoids this problem.

• Be as specific as possible; often the problem is too many references retrieved rather than too few.

• If retrieval is too limited, ask for help in making the search more comprehensive. In some cases MEDLINE may not be the most appropriate database for the topic or older years may need to be searched.

• MeSH Tree Structures may be used to select narrower terms or additional search terms. (Remember, "trees" are available at the Medical Center Library.)

TRAINING/HELP

Training for MEDLINE can be arranged by calling the Medical Center Library at 233-6567 or 233-6568 or sending EMAIL to SNALLE01@UKCC or Stephanie Allen on Wang.

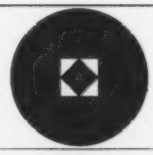
The Medical Center Library Reference staff will be happy to assist you in the selection of appropriate descriptors and with search strategies. Call 233-6567 or 233-6568 M-F between 8 AM and 5PM.

1/10/92

SYSTEMS AND PROCEDURES EXCHANGE CENTER

SELECTED READINGS

ASSOCIATION OF RESEARCH LIBRARIES



OFFICE OF MANAGEMENT SERVICES

Selected Readings

Cronin, Mary J. "The second Time Around: Transition to a New Integrated Library System (at Boston College)." *Library Hi Tech* 7 (4): 76-77.

Epstein, Susan Baerg. "Implementing a Second System: Some New Concerns." *Library Journal* 116 (January 1991): 76-77.

_____. "Planning for Second Systems: An Introduction." *Information Technology: It's for Everyone: Proceedings of the LITA Third National Conference*. Thomas W. Leonhardt, ed. Chicago: ALA Press, 1992.

Feuer, Sam. "Moving tot he Next-Generation System: a Case History of a Vendor's Approach." *Library Hi Tech* 8 (1): 57-63.

Giesecke, Joan. "Post-Implementation Blues: Managing the Transition to a Second System." *Information Technology: It's for Everyone: Proceedings of the LITA Third National Conference*. Thomas W. Leonhardt, ed. Chicago: ALA Press, 1992.

Kershner, Lois M. "Upgrade with Same Vendor." *Information Technology: It's for Everyone: Proceedings of the LITA Third National Conference*. Thomas W. Leonhardt, ed. Chicago: ALA Press, 1992.

Pitkin, Gary M., ed. "Library Systems Migration: Changing Automated Systems in Libraries and Information Centers." Westport: Meckler, 1991. Some of these articles appeared in *Information Today* 7 (July/August 1990): 28-31, 34, 36.

Plank, Marietta A. "Changing Vendors for a Next-Generation Library System." *Information Technology: It's for Everyone: Proceedings of the LITA Third National Conference*. Thomas W. Leonhardt, ed. Chicago: ALA Press, 1992.

Smith, Barbara G. and Marilyn A. Borgendale. "The Second Time Around: the Next-Generation Local Online System." *Library Journal* 113(July 1988): 47-51.